THE INDUSTRY'S RECOGNIZED AUTHORITY

ROCK PRODUCTS

LARGEST PRODUCER CIRCULATION IN THE HISTORY OF THE FIELD

JULY 1954

Prospect, Fla. plant, Maule Industries, Inc.
Story in this issue.

1 Crusher that does the work of 2 or more!

WILLIAMS
HEAVY DUTY
Hammer Mills

One Williams Hammer Mill will do your complete crushing job in a single operation—reduce production costs as much as half—save up to 75% of initial equipment expense.

- √ No primary or secondary crushers required.
- √ Eliminates extra drives, conveyors and other equipment, foundations and housings for additional machines.
- √ Cuts manpower, downtime, maintenance, parts replacement, power requirements and other operating costs.

There's A Williams Hammer Mill That Fits YOUR Needs Exactly

SUPER-SLUGGER . . . Crushes stone as big as a 2½-yard dipper can handle, and reduces them to 1½", ¾", or down to agricultural limestone, **in one operation!** Up to 550 ton hourly capacity.

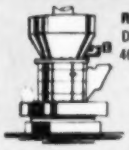
SLUGGER . . . Makes 1½", ¾", or agstone from 10" stone in one operation! Output up to 100 tons hourly.

NF & GA MODELS . . . Reduces 4" to 6" stone to any size from ½" to 20 mesh. Capacity up to 200 tons hourly.

Send For Catalog Today

WILLIAMS PATENT CRUSHER & PULVERIZER CO.
800 ST. LOUIS AVE. • ST. LOUIS 6, MO.

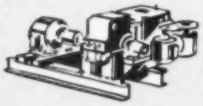
WILLIAMS LINE IS COMPLETE



ROLLER MILLS—IMPACT and DRYER MILLS, for fine grinding to 400 mesh or micron sizes.

AIR SEPARATORS—any type, for precision control and high production in fine grinding.

VIBRATING SCREENS—in any size for any job. 1 to 3 decks, open or enclosed.



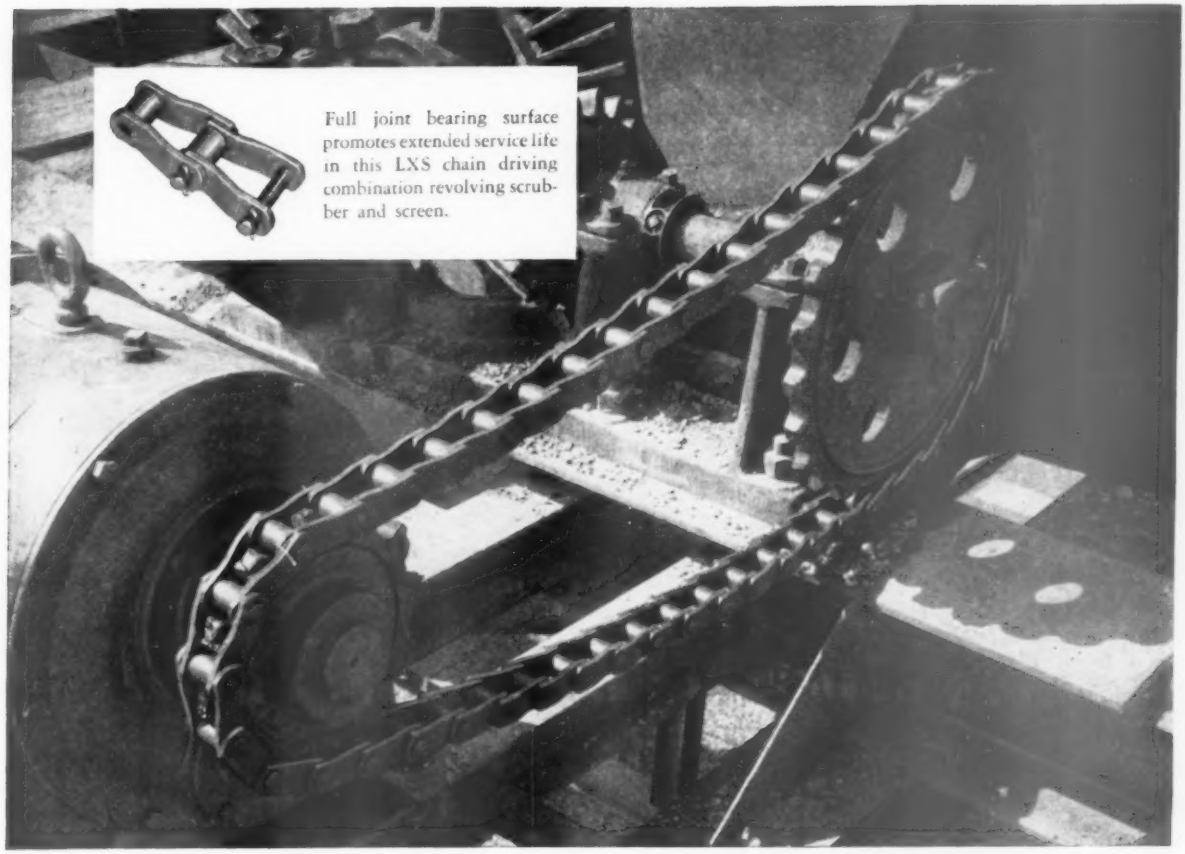
HELIX-SEAL MILLS—for dust-free grinding, and for wet, sticky, greasy materials.

COMPLETE "PACKAGED" PLANTS—for crushing, grinding, separating.

WILLIAMS

CRUSHERS GRINDERS SHREDDERS

OLDEST AND LARGEST MANUFACTURER OF HAMMER MILLS IN THE WORLD



Full joint bearing surface promotes extended service life in this LXS chain driving combination revolving scrubber and screen.

For heavy-duty, exposed drives -- it's LINK-BELT LXS chain

LINK-BELT offers the chain that's best for every drive and conveying job

Accurate sizing of pins, bushings and pitch holes in Link-Belt LXS chains assures a tight fit of mating parts. This plus many other important features promotes longer chain life. That's why they are so widely used for exposed drives subject to repeated heavy loads and high impact.

Similarly, for other types of power transmission and conveying, Link-Belt builds chains with the characteristics required by the job. And it's this completeness of line that gives you the *right* chain for *your* requirements.

Ask your nearest Link-Belt office or distributor for the facts on the complete Link-Belt line of chains and sprockets.

No ONE chain serves every purpose — get the RIGHT one from Link-Belt's complete line

Class 800 ley bushed chain—for heavy duty, abrasive conveying and elevating.

Class C combination chain—popular, durable, low cost design for elevators, conveyors.

Class SS bushed roller chain with straight sidebars—particularly suited for apron conveyors, slat conveyors.

Link-Belt "Flint-Rim" cast sprockets give extra long life. Cast steel sprockets for most severe service.

13,561-A

LINK-BELT

CHAINS AND SPROCKETS

LINK-BELT COMPANY: Executive Offices, 307 N. Michigan Ave., Chicago 1. To Serve Industry There Are Link-Belt Plants, Sales Offices, Stock Carrying Factory Branch Stores and Distributors in All Principal Cities. Export Office: New York 7; Canada, Scarboro (Toronto 13); Australia, Marrickville, N.S.W.; South Africa, Springs. Representatives Throughout the World.

ROCK PRODUCTS

JULY, 1954 — THE INDUSTRY'S RECOGNIZED AUTHORITY — VOL. 57, No. 7

Bror Nordberg
Editor

Nathan C. Rockwood
Editorial Consultant

This Month

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To Subscribers—Date on wrapper indicates issue with which your subscription expires. . . In writing to have address changed, give old as well as new address.

B. F. Goodrich Grommet belts last 20 to 50% longer, yet cost no more than ordinary V belts

Save 3 ways

Here's how you can make a 3-way saving with B. F. Goodrich Grommet V belts. First, you save on replacement costs because Grommet V belts last 20 to 50% longer. You save on production costs because machines keep running with fewer interruptions. And you save on maintenance costs because these V belts need less attention. Here are the basic reasons BFG Grommet belts outlast and outperform ordinary V belts.

Strongest V belt made

All of the load-carrying cords in Grommet belts are concentrated in twin grommets. These grommets are cord loops, made like giant twisted cables except that they're endless. Since there are no center cords, the Grommet belt is more flexible, and so can "give" temporarily and absorb shock loads. As a result, Grommet belts last 20 to 50% longer, depending on the service. (The more severe the service, the greater the increase over ordinary belts.)

No weak spots

The section where cords overlap is the weak spot in ordinary belts. That's where 80% of V belt failures occur. But in Grommet V belts this cause of belt failure has been eliminated. The grommets are endless. There are no splices or overlaps—no weak spots to cause premature belt failures.

⅓ more grip

Grommet V belts have more rubber in relation to belt size. Without any stiff overlap, they're more flexible, grip sheaves better. Size for size, Grommet belts give ⅓ more gripping power with less slip, pull heavier loads with a higher safety factor. And because there is less slip, there is also less surface wear.

Less stretch

In ordinary belts under tension, the center cords loaf, the outer cords overwork because tension is greater near the driving faces. Grommet belts, with no center cords, have much more strength and less stretch. Grommet belts stretch, on an average, only about ⅓ as much as ordinary belts.

They cost no more

Grommet V belts were developed by B. F. Goodrich to give V belt users more for their money. No other belt will stand so much punishment or last so long. Yet the savings they can make for you will be clear profit because Grommet belts cost not one cent more than ordinary V belts.

Send for proof today

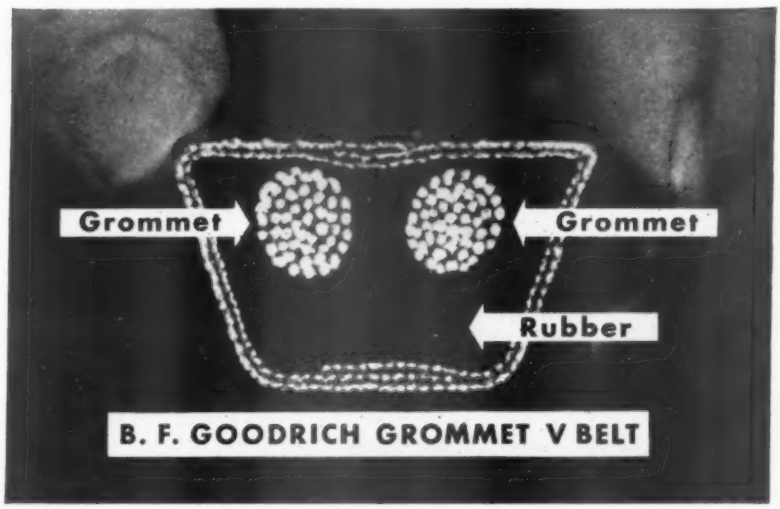
Ask your local B. F. Goodrich distributor or send the coupon for a set of reports telling users' experiences and showing actual installations where Grommet V belts have outlasted all others.

Grommet—T. M. The B. F. Goodrich Co.

Grommet V-Belts BY

B.F.Goodrich

INDUSTRIAL PRODUCTS DIVISION



The B. F. Goodrich Company
Dept. M-274
Akron, Ohio

☐ Send set of reports telling users' experiences and showing actual installations proving that B. F. Goodrich Grommet belts outlast all others.

☐ Have distributor show me the "X-ray" belt so I can see Grommet belt construction.

Name_____

Firm Name_____

Address_____

City_____ Zone____

State_____

ALLIS-CHALMERS

GRINDING MILLS

SPIRAL LINERS make grinding MORE PROFITABLE

INCREASED CIRCULATING LOAD . . . LESS OVERGRINDING . . .
Material is kept on the move. Large balls do not overgrind fine particles needlessly. Percentage of circulating load has been *tripled* on several mills equipped with spiral liners!

EFFECTIVE BALL SEGREGATION
Large balls at feed end break large particles of incoming feed. Small balls concentrate at discharge end where they utilize greater ball surface for grinding smaller particles.

SIMPLIFIED FEEDING
Ball charge does not fight incoming feed. Motion imparted to balls and material by spiral liners results in a low level of balls at feed end and a higher level at discharge end.

INCREASED CAPACITY
More material can be put through mill in a given time. Retention time of material in the mill is reduced. Power cost is less — no power is wasted on overgrinding . . . ball segregation increases efficiency.

For application of spiral liners to your grinding mill, call the Allis-Chalmers representative in your area, or write Allis-Chalmers, Milwaukee 1, Wis.

A-4155

ALLIS-

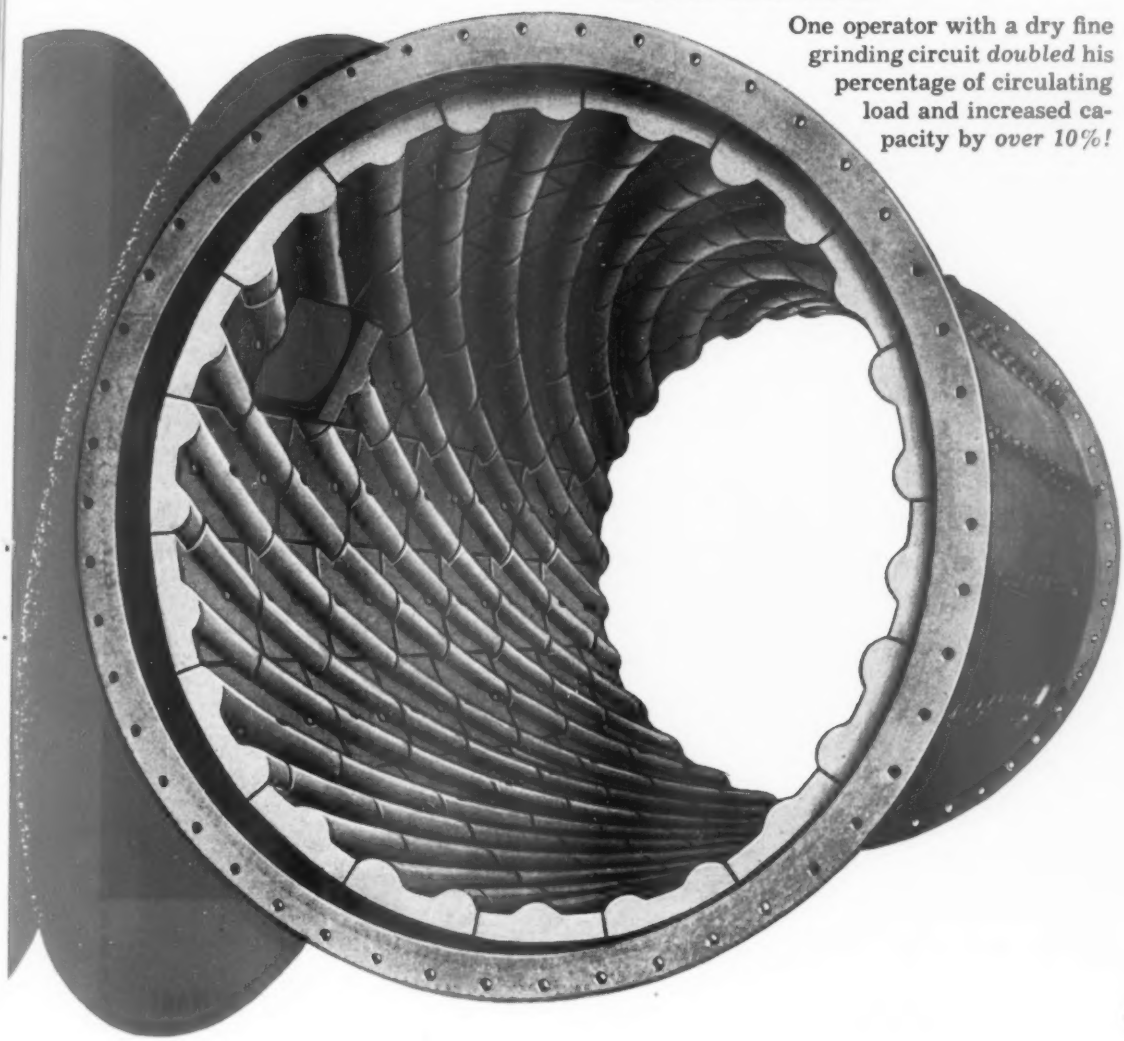
MILWAUKEE 1,

HERE ARE USER EXPERIENCES . . .

One operator with mills in a coarse wet grinding circuit *tripled* his percentage of circulating load with spiral liners.

Another wet grinding mill operator *tripled* circulating load and increased capacity by nearly 10%! Plans at this plant call for spiral liners for all ball mills.

One operator with a dry fine grinding circuit *doubled* his percentage of circulating load and increased capacity by *over 10%!*



CHALMERS

WISCONSIN

A-C ALLIS-CHALMERS

It costs time and money to be

ONE DIPPER LATE!

Amsco manganese steel dippers are regularly ordered for replacement on equipment in the field. Often they go to users who found that ordinary steel dippers simply would not hold up.

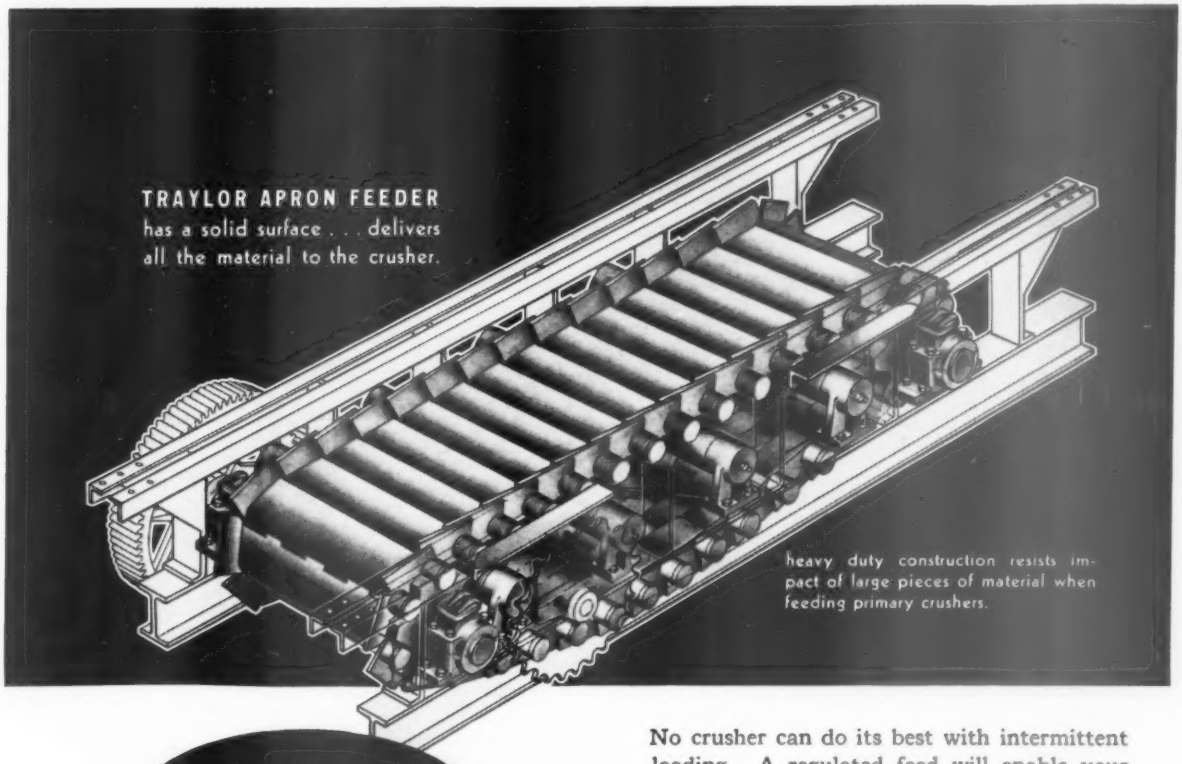
It's smart economy to specify tough, dependable Amsco dippers with original equipment.

Next time you order a power shovel or a replacement dipper, specify long life right on your purchase order . . . specify an Amsco manganese steel dipper.

AMERICAN Brake Shoe COMPANY

AMERICAN MANGANESE STEEL DIVISION
Chicago Heights, Ill.

get more out of your crushers WITH TRAYLOR FEEDERS



A **Traylor** LEADS TO GREATER PROFITS

TRAYLOR ENGINEERING & MANUFACTURING CO.
665 MILL ST., ALLENTOWN, PA.

SALES OFFICES: New York • Chicago • San Francisco
CANADIAN MFRS: Canadian Vickers, Ltd., Montreal, P. Q.

INCREASED PRODUCTION is one way I can reduce my costs per ton. Send me the facts on Traylor Feeders.

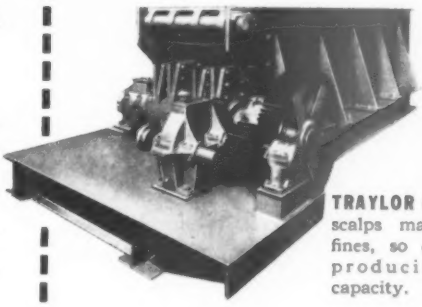
*Name*_____

*Company*_____

*Address*_____

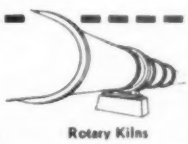
*I am operating a*_____ *crusher.*

No crusher can do its best with intermittent loading. A regulated feed will enable your crusher to operate at peak efficiency continuously . . . even double its present output. If you want to get more out of your crushers . . . look into a Traylor Feeder today.

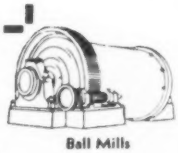


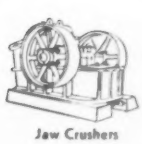
TRAYLOR GRIZZLEY FEEDER scalps material, by-passing fines, so crusher is always producing at greatest capacity.

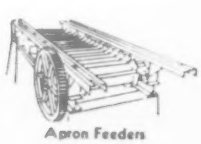

Primary Gyratory Crushers


Rotary Kilns


Secondary Gyratory Crushers


Ball Mills


Jaw Crushers


Apron Feeders

Rust-proof your air tools

with GULF ROCK DRILL OIL

OTHER REASONS WHY YOU'LL LIKE IT—

1. Nongumming
2. High film strength
3. Atomizes readily
4. Covers completely
5. Has low pour point

Yes, you insure freedom from rust when you use Gulf Rock Drill Oil for air operated tools—it contains an effective corrosion inhibitor which keeps moving parts clean as a whistle.

Gulf Rock Drill Oil also has exceptional resistance to oxidation—does not form gummy deposits on internal surfaces of air tools.

Then too, Gulf Rock Drill Oil provides outstanding protection against wear. It has good surface wetting ability—covers completely—and has unusually high film strength.

Gulf Rock Drill Oil has the proper viscosity for this service—atomizes properly in air line oilers—and has a very low pour point. Its use insures cleaner tools, fewer repairs, and lower costs for maintenance.

For further information on Gulf Rock Drill Oil and for expert help on the lubrication and maintenance of other types of quarry equipment, call in a Gulf Sales Engineer today. Write, wire, or phone your nearest Gulf Office.

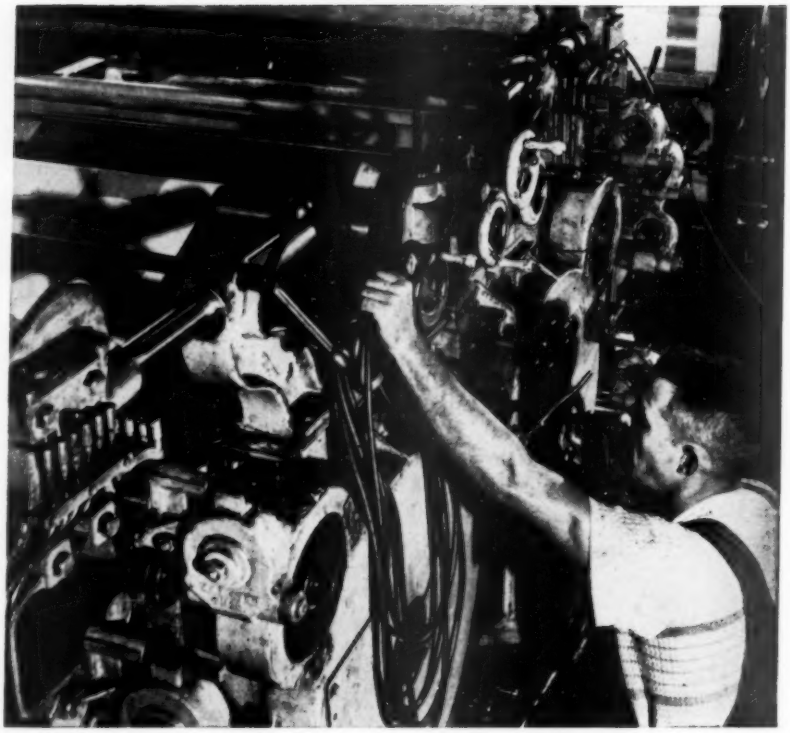
GULF OIL CORPORATION
GULF REFINING COMPANY

1822 GULF BUILDING,
PITTSBURGH 30, PA.

GULF

No. 3 of a series

How Bemis makes GOOD multiwall bags for you



As with other types of printing, there is no substitute for experience in multiwall paper bag printing. A typical Bemis pressman is Wesley Pitcher, shown here at the 4-color press he operates at the Bemis plant in Peoria. Wesley went to work in the printing department 21 years ago and has been a pressman for 18 years.

Good bag printing requires *three* things . . . and Bemis has 'em!

Good multiwall bag printing . . . the kind that makes your brand a star salesman . . . requires good presses, good plates and good workmen. *And Bemis has 'em!*

1. Specially designed presses . . . with features needed for *best multiwall printing* . . . are used.

2. Our own skilled, experienced plate makers make our printing plates . . . so we control quality every inch of the way.

3. Since we have been making and printing quality multiwalls for twenty-seven years, we have trained our pressmen to the point that they do, day in and day out, the best printing in the bag industry.

Bemis

General Offices—St. Louis 2, Mo.
Sales Offices in Principal Cities

BEMIS BRO. BAG COMPANY ®

SMALL QUARRIES AND MINES IMPROVE THEIR PROFIT PICTURE WITH "EUCS"

fewer drivers . . . lower fuel cost . . . reduced maintenance

When your competitors are using "Eucs" to haul stone, sand or gravel, you've really got a problem on your hands! You just can't afford to pass up the cost cutting advantages . . . the high production and low maintenance cost . . . that you get with "Eucs".

And your operation doesn't have to be a big tonnage producer for "Eucs" to pay off. For example, H & R Stone Co. of Indiana is just one of many small quarries, sand and gravel producers, and open pit mines that have cut their hauling costs with Model UD 10-ton Rear Dumps. This quarry replaced four conventional highway trucks with a single 10-ton "Euc" and reports savings of $6000 per year in maintenance cost alone. Because the "Euc" stays on the job with none of the lost time that was a costly headache previously, there have been important savings in labor cost, too.

Have your nearby Euclid Distributor provide a production and cost estimate for your operation . . . there's no obligation and the chances are mighty good that he can show the way to better profits through lower hauling costs.

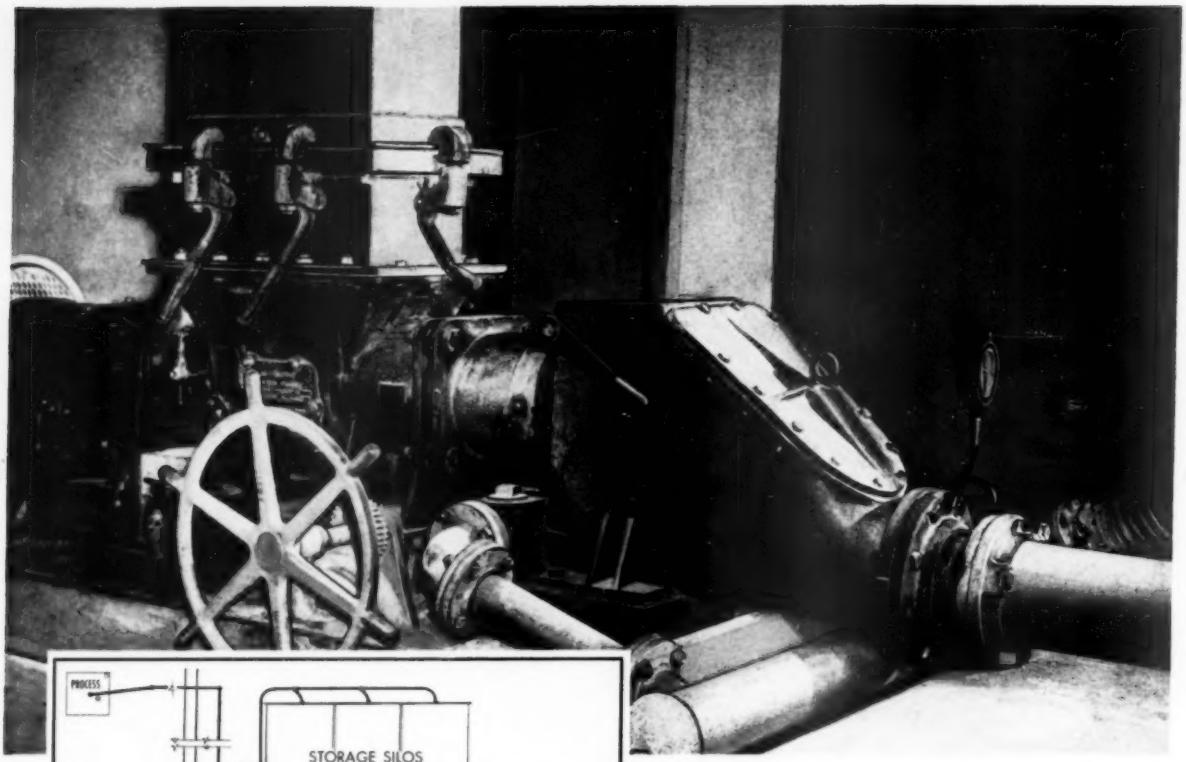
10-ton off-highway "Euc"

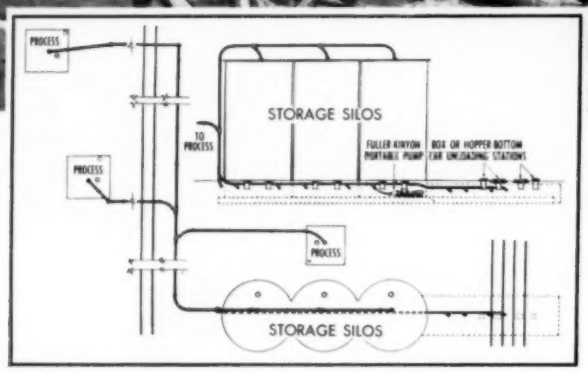
EUCLID DIVISION
GENERAL MOTORS CORPORATION
Cleveland 17, Ohio

Euclid Equipment

FOR MOVING EARTH, ROCK, COAL AND ORE

GM GENERAL MOTORS





Fuller-Kinyon Pump *does double duty!*

Not only does this Fuller-Kinyon Pump unload pulverized phosphate rock from either box or hopper-bottom cars, but it serves a double duty . . . it can be readily moved, on a narrow-gage track, to positions underneath any one of three silos for conveying to three widely separated process points in the plant. Connection to the silo to be emptied is easily and quickly made with quick-detachable clamps. By use of a diverting valve in the conveying line, it is possible to convey directly from car to process points if desired, by-passing the storage silos.

Years of experience and advanced engineering design by Fuller enabled the purchaser to not only reduce their initial investment by the use of one Pump for this dual purpose, but it also gives them a clean, safe, and efficient conveying system, one that will operate, day in and day out, at the lowest possible cost per ton of material handled.

Conveying capacity is rated at 50 tons an hour, with the longest single conveying distance approximately 690 feet; together with branch lines makes a total of about 1070 feet. Air for conveying is furnished by a Fuller Rotary Single-stage Compressor, piped direct to the Pump . . . air where and when needed, at the proper pressure to do the work most economically and efficiently.

If you handle dry, pulverized materials in bulk it will be worth your while to learn about Fuller air-conveying systems. Write us today.

Fuller

CONVEYS BY AIR

CLEAN . . . SAFE . . . EFFICIENT

FULLER COMPANY, Catasauqua, Penna.

Branch Offices

Chicago • San Francisco • Los Angeles • Seattle • Birmingham

P-153
9685

DRY MATERIAL CONVEYING SYSTEMS AND COOLERS . . . . PREHEATERS . . . . COMPRESSORS AND VACUUM PUMPS . . . . FEEDERS

"We Haul 25,000 TONS of SLAG A DAY ON Firestone TIRES"

Edw. C. Levy Co., Detroit

Morton E. Harris, Executive Vice President, and Wm. Rafferty, General Maintenance Manager, talking to a driver with an outbound load of slag.

MORTON E. HARRIS

"An around-the-clock, 365-day-a-year operation like ours demands dependable, long mileage tires. It has been our experience that Firestone All Traction Logger Tires meet these requirements. That's why we use them."

(Signed) MORTON E. HARRIS
Executive Vice President
EDW. C. LEVY CO.

The Edw. C. Levy Co. is one of the largest processors of slag in the world. Every 24 hours and every day in the year the 500 units of the Levy fleet are on the job covering an average of 40,000 miles and moving 25,000 tons of slag in and out of the huge Levy plant in Detroit.

In an operation of such giant proportions, tires are extremely important. The standard tire equipment on the Levy fleet is the Firestone All Traction Logger.

They are on this fleet because they stand up, give long mileage and hold downtime to a minimum.

Whatever your hauling job, Firestone tires will do the same for you. Have your Firestone dealer or store give you complete information. Ask him to show you how Firestone tires can speed up work on the job, cut downtime and reduce your over-all tire expense.

WHEN YOU BUY NEW EQUIPMENT OR REPLACEMENT TIRES—ALWAYS SPECIFY FIRESTONE

Enjoy the Voice of Firestone on radio or television every Monday evening over NBC

FASTEST, EASIEST WAY TO LOAD MATERIAL FROM STOCK PILE INTO TRUCKS

BARBER-GREENE BUCKET LOADERS

No other machine, no other method can equal the speed and efficiency of Barber-Greene Bucket Loaders in loading sand, gravel, and other similar bulk materials from stock piles and storage areas into trucks. At rates up to 3 cubic yards per minute, these loaders dig, lift and convey bulk material in one continuous high capacity flow, virtually eliminating truck waiting and driver waiting time. Simple to operate, easy to understand. The truck driver can operate the loader to load his own truck. Backed by over 1,000,000,000 yards of material handled by Barber-Greene Loaders, they represent the ultimate in low-cost loading efficiency.

A TYPE THAT WILL DO YOUR JOB BEST

MODEL 543

This self-propelled loader is mounted on a tractor-type chassis and pneumatic tires for traveling from job to job at rates up to 15 m.p.h. Equipped with a hydraulic swivel conveyor, it has the reach to load highest trucks, long trucks and trailers, and trim the load to full capacity every time. Capacity—3 cubic yards per minute. Easily converted for loading coal or snow.

Send for catalogs!

Complete and detailed information on the Model 543 and 82A is contained in individual catalogs available at your request. Ask your Barber-Greene Distributor or write directly to the address below.

MODEL 82A

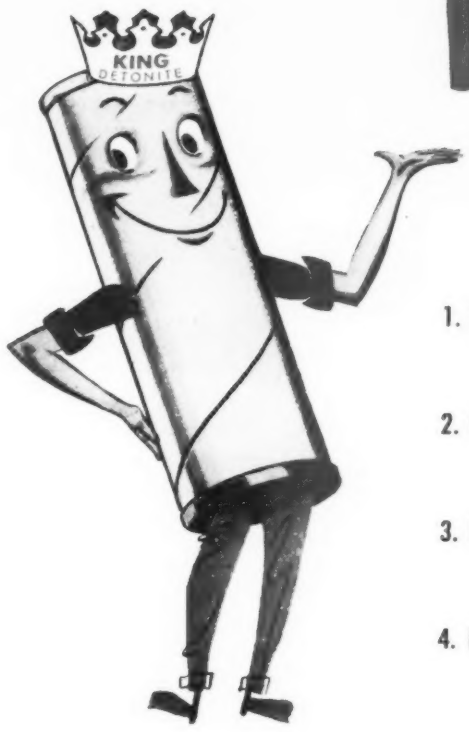
This crawler-mounted, 3 cubic-yard per-minute Bucket Loader has the stability so often necessary in typical truck loading operations—in pits, on soft or rocky ground, etc. Built for heavy, continuous operations, it is economical enough to justify itself in intermittent service. Complete accessories are available, including single and double deck vibrating screens for loading, screening and scalping simultaneously.

Barber-Greene

Aurora, Illinois, U. S. A.

what a BLOW to your costs... when you use

KING DETONITE



Blasting is the key . . . blasting with King Detonite, and we'll prove it to you right in your own quarry. (See coupon below.) With Detonite blasting, you get important reductions in all these 4 major operating costs:

1. **BLASTING COST**— King Detonite's slow, heaving, spreading action lifts and fully displaces the burden, reducing secondary drilling and shooting to an absolute minimum.

2. **ROCK-HANDLING COST** — King Detonite breaks up rock into sizes that permit shovels to dig efficiently at all times, thus reducing handling costs.

3. **EQUIPMENT MAINTENANCE COST** — King Detonite's more uniform fragmentation means less wear and tear on expensive equipment . . . less cost for maintenance and replacement.

4. **PROCESSING COST**— King Detonite's more uniform fragmentation allows your crushers to operate at top capacity, thus lowering cost of processing the stone.

KING DETONITE

PATENTED SURFACE-SENSITIZED EXPLOSIVE

Since 1878—Our 76th year

THE KING POWDER CO., INC.

CINCINNATI 1, OHIO

4 WAYS TO CUT COSTS

King Powder Co., Inc.
Cincinnati 1, Ohio

Show me how Detonite will cut my costs 4 ways. Without obligation, have the King Representative get in touch with me to arrange for a Detonite demonstration right at our quarry.

NAME_____

TITLE_____

COMPANY_____

ADDRESS_____

or phone us collect

Compare these dirt-

PENETRATES FASTER

Curved and offset cutting edge on Allis-Chalmers Motor Scrapers concentrates all the horsepower on the center section during initial penetration. The penetrating ability of a round-end spade helps illustrate the practical soundness of this Allis-Chalmers design.

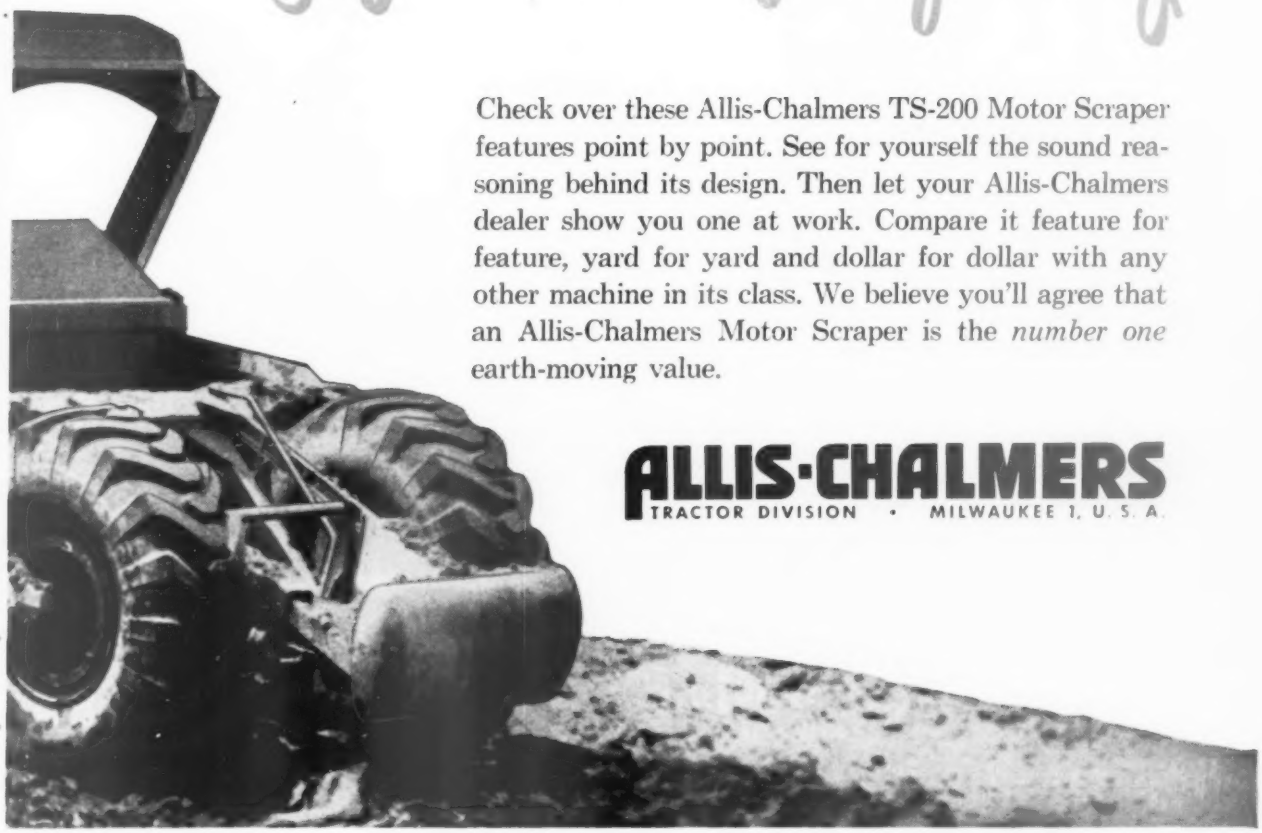
LOADS FASTER

Low, wide bowl plays an extremely important part in ease of loading. Tests have proved that loading resistance is largely determined by the height to which the load is built. New dirt entering the bowl must lift the load directly above it in order to make room for itself.

This chart shows how loading resistance continually increases as the load builds up . . . how the lower, wider bowl of an Allis-Chalmers Motor Scraper requires less time and power to get the same yardage.

PERFORMANCE MAKES DOLLARS

moving features before you buy



Check over these Allis-Chalmers TS-200 Motor Scraper features point by point. See for yourself the sound reasoning behind its design. Then let your Allis-Chalmers dealer show you one at work. Compare it feature for feature, yard for yard and dollar for dollar with any other machine in its class. We believe you'll agree that an Allis-Chalmers Motor Scraper is the *number one* earth-moving value.

ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

HEAPS AUTOMATICALLY

The combination of slightly deeper center cut and correctly angled cutting edge shapes the load as the scraper fills. The greater volume of dirt flowing into the center of the bowl "boils" forward, to the rear and to the sides, producing an automatically heaped load without excessive spillage.

These diagrams show how an automatically heaped load avoids costly spillage even though the center is built up above the sides of the bowl.

SPREADS EVENLY

Forward movement of ejector is timed with lifting action of apron, which provides a continuous flow of material to insure a smooth, even spread.

High apron lift prevents any possibility of material's jamming. Even when loaded from overhead, anything that can be put into the bowl can be easily ejected.

WHEN DESIGN MAKES SENSE

New-

ALLIS-CHALMERS
Rubber-Lined
PUMP

for easier servicing when pumping abrasive, fine-mesh materials.

Loosening of nut allows man to remove both bolt and nut in a single quick motion.

Allis-Chalmers Rubber-Lined Pumps substantially reduce your maintenance, service and downtime costs. New design permits exceptionally fast takedown and reassembly without the use of special tools.

10 to 50 times more wear

What's more, Allis-Chalmers Rubber-Lined Pumps stand up 10 to 50 times longer than hard alloy pumps, minimize equipment costs. You'll save, too, because the A-C rubber linings are bonded to a steel skeleton which is bolted to the casing. There's no possibility of lining "pop out" or deformation.

Find out how these and other advantages of Allis-Chalmers pumps help you enjoy lower cost per gallon. See how every A-C pump is engineered to its specific application. Ask your representative or write Allis-Chalmers, Milwaukee 1, Wisconsin, for Bulletin 52B8156. A-4389

ALLIS-CHALMERS

A-C ALLIS-CHALMERS

*

...is a Johnson-March Engineered Dust Control System!

Wherever dust becomes airborne in a rock crushing plant it causes accident and health hazards, equipment damage and a serious plant and community nuisance.

That's why Johnson-March engineered systems are designed to stop dust at the source . . . at primary and secondary crushers, conveyors, elevators, screens, loading and unloading bins and wherever dust occurs . . . before it becomes airborne.

No ducts, fans or other cumbersome equipment. Easy to install, and economical to operate. Cost averages only 1/10 that of other dust handling systems.

Johnson-March engineers will be glad to analyze your dust problems and recommend a system engineered to your specific requirements.

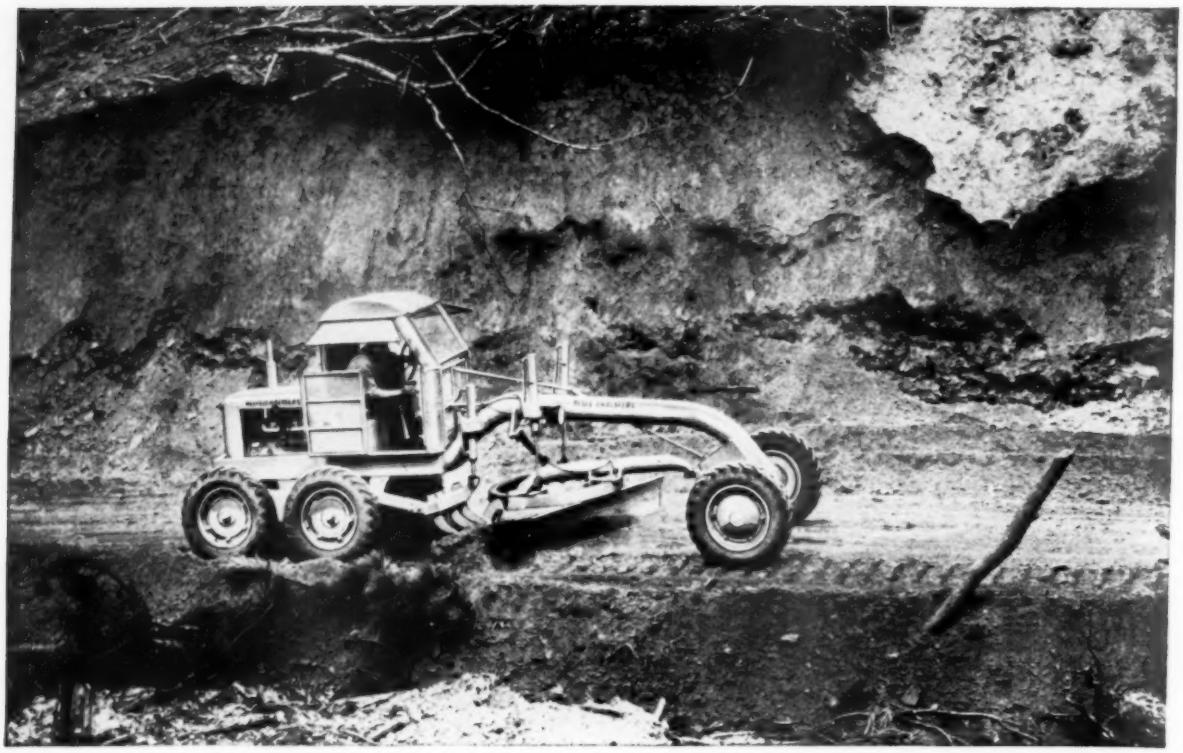
If you have a stack dust problem, write for information about the Liquid Precipitator "Multiple-Action" Scrubber—the most efficient unit yet developed for removing dust from stack discharged gases.

*Actual unretouched photos taken before and after installation of a Johnson-March system at a large Eastern Rock Crushing Plant.

Johnson March

Dust Control Engineering

DEPT. RP, 1724 CHESTNUT STREET, PHILADELPHIA 3, PA.



SMOOTHS WINTER OUT OF HAUL ROADS AT ⅓ THE COST OF LARGE GRADERS

Haul roads take a real beating—especially during the winter months. Frost boils, ruts, excessive breakup — all need urgent attention before roads can efficiently handle spring's increasing traffic.

The Allis-Chalmers Model D is tailor-made for haul road maintenance . . . yet with all its capacity to do outstanding work on large or small jobs, this versatile machine costs only one-third as much as a larger grader.

With powerful 50 brake hp. engine backed by sure-footed tandem, the Model D with ROLL-AWAY moldboard blades faster, smoother and easier — on grading and leveling, ditching and sloping, and other maintenance jobs. Its compact design allows it to keep working when trucks pass — no need to pull off the road.

For handling a variety of year-round jobs, the Model D has easily mounted attachments — hydraulic rear-end loader, scarifier, snowplow and windrow eliminator. In addition, power circle turn and leaning front wheel are also available as optional equipment.

The full story and a demonstration of the versatile Model D awaits you at your Allis-Chalmers dealer. See him soon.

Weight — 8,800 lb. (bare)
Brake hp. — 50
Speeds — four forward to 25.6 mph, reverse to 3.3 mph.

ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

ROLL-AWAY is an Allis-Chalmers trademark.

better SAND recovery...

Telsmith Single Screw Classifier (upper right) with Telsmith Sand Drag (foreground) in an Ohio sand and gravel plant.

COARSE or FINE

To meet the most exacting specifications, Telsmith Screw-Type Sand Classifiers give you—

1. **Large water capacities.**
2. **Even feed—no surging.**
3. **Maximum dewatering action—dryer product.**
4. **Most economical operation.**
5. **Quick emptying tank.**

All these Telsmith advantages result from specially designed settling hopper and feed box—special raised sand discharge openings—low angle of incline with slow screw speeds—screws of special steel with water flushed cutless rubber bearings at lower end and roller bearings at upper end including roller bearing drive shaft and special quick emptying drainage valve.

TELSMITH Single Screw and Twin Screw SAND CLASSIFIERS — sizes: 20″ x 15′, 24″ x 20′, 30″ x 25′—capacities: 30 to 140 cu. yds. hourly for coarse sand; 17 to 80 cu. yds. hourly for fine sand.

SEND FOR BULLETIN 266.

SC-1

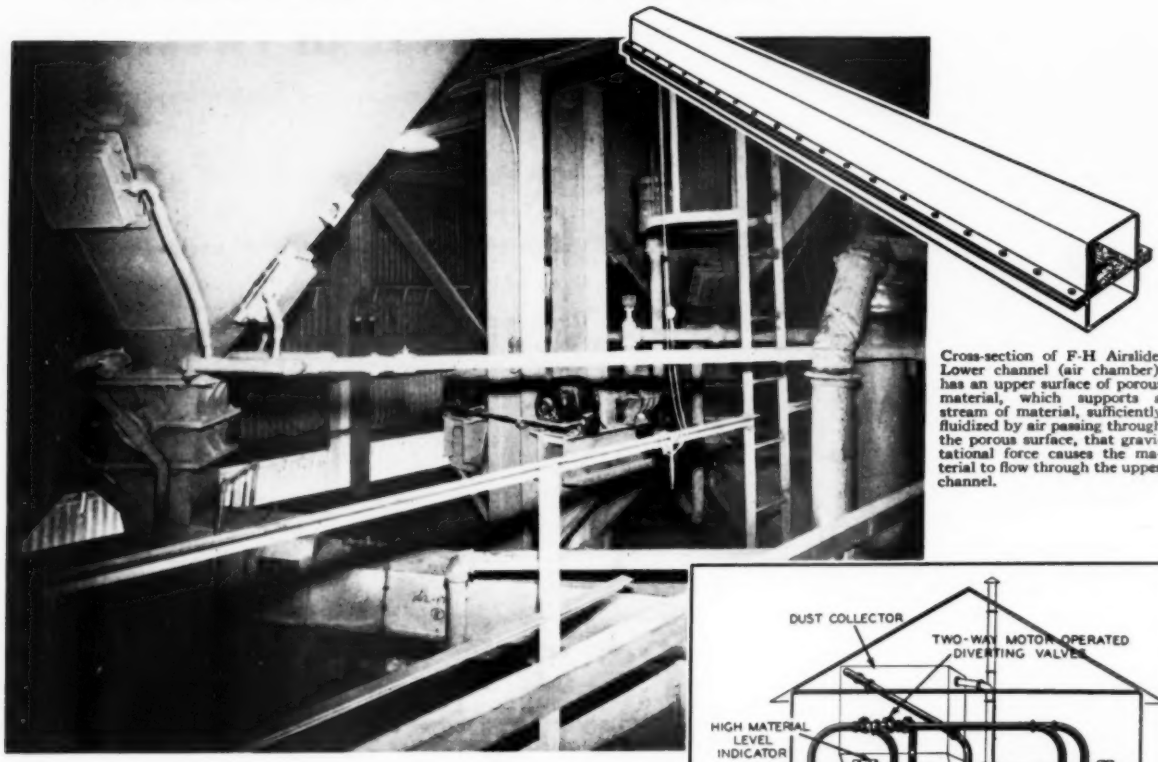
SMITH ENGINEERING WORKS, 508 E. CAPITOL DRIVE, MILWAUKEE 12, WISCONSIN

Cable Address: Sengworks, Milwaukee

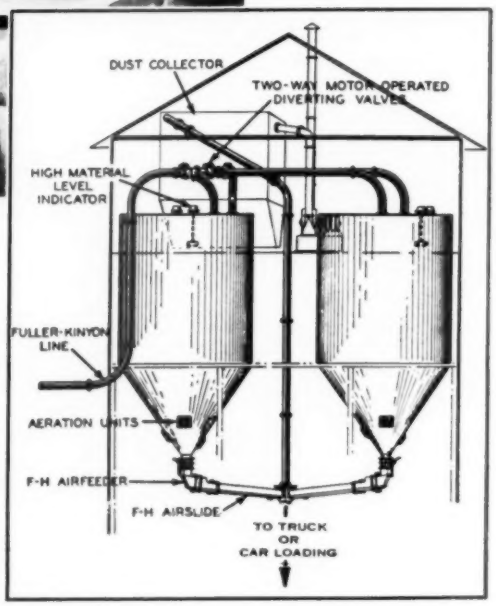
51 East 42nd St. New York 17, N. Y. • 211 W. Wacker Drive Chicago 6, Ill. • 713 Commercial Trust Bldg. Philadelphia 2, Pa. • 238 Main Street Cambridge 42, Mass. • Boehck Eqpt. Co. Milwaukee 3, Wis. • The McLean Co., 3525 Lakeside Ave. Cleveland 14, Ohio

Marens Eqpt. Co., New Hudson, Mich. • Rish Eqpt. Co., Cincinnati 14, & Portsmouth, Ohio—Charleston 22, & Clarksburg, W. Va.—Roanoke 7, & Richmond 10, Va. Robert S. Bailey, 816 W. 5th St., Los Angeles 17, Calif. • Mines Eng. & Eqpt. Co., San Francisco 4, Calif. • Clyde Eqpt. Co., Portland 9, Ore., & Seattle 4, Wash.

Meet the F-H AIRSLIDE® . . .
get acquainted with its possibilities



Cross-section of F-H Airslide. Lower channel (air chamber), has an upper surface of porous material, which supports a stream of material, sufficiently fluidized by air passing through the porous surface, that gravitational force causes the material to flow through the upper channel.



For truck and car loading

F-H Airslides have many possibilities . . . can be applied to the conveying of many dry, fine materials in industrial plants where application of other types of conveyors are impractical. They can be placed overhead, around corners to by-pass equipment installed, and other obstructions in a plant.

Illustrated is a good example of how Airslides can be used to convey dry, pulverized materials from storage bins for truck or hopper-bottom car loading. Clean, safe, fast loading, with a minimum of horsepower. Air-slides eliminate moving, hazardous parts so prevalent in many other types of conveyors . . . no lubrication; time out for breakdowns and repairs reduced to the minimum; production losses cut to the bone.

Write for Bulletin FH-2, illustrating and describing the many ways this modern conveyor can be applied to various conveying problems.

Fuller

CONVEYS BY AIR

. . . NOTHING MOVES BUT THE MATERIAL

FULLER COMPANY—CATASAUQUA, PA.

Branch offices

Chicago 3 • 120 S. LaSalle St.
San Francisco 4 • 564 Market St.
Los Angeles 36 • 5225 Wilshire Blvd.
Seattle 9 • 120 6th Ave. N.
Birmingham 3 • 2000 1st Ave.

DRY MATERIAL CONVEYING SYSTEMS AND COOLERS • COMPRESSORS AND VACUUM PUMPS • FEEDERS AND ASSOCIATED EQUIPMENT

FH-38
2050

PHOTO COURTESY STEWART & STEVENSON SERVICES, INC., HOUSTON, TEXAS

quad power unit extends advantages of **CHRYSLER** *Performance and Economy to new fields*

Here's Chrysler Power at work in the South Texas oil fields. This time it is four Chrysler Model 20 Industrial V-8 Engines working together as a single unit in a Stewart & Stevenson Quad Power Unit, in turn driving a mud pump. This particular Quad has supplied mud pump power for the drilling of ten oil wells in the eight months it has been in use.

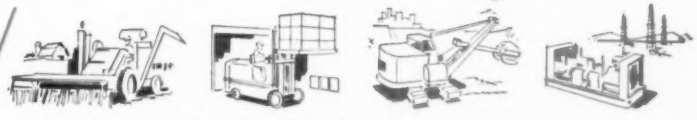
You see Stewart & Stevenson Quads in other fields, too, but nowhere do they encounter tougher jobs than pumping mud—or more important jobs either. The continued flow of mud down the hole being drilled is absolutely necessary if drilling is to continue uninterrupted. That's because mud serves several very important functions: it lubricates the drill bit, it removes bit cuttings, it seals the walls of the hole and it provides weight to prevent blowouts.

Pumping mud requires great power on a continuous basis, power that can "roll" with the heavy pulsating motion of the pump. The 331 cubic inch displacement Model 20 Engine is ideal for a multiple-engine installation. It meets the demand for high horsepower. It is a compact engine, easy to install, low in initial cost, and economical to operate and maintain. Parts are readily available, and at a fraction of the cost of competitive equipment. Each engine is supplied with a Chrysler gyrol Fluid Coupling which absorbs shock loading, thereby enabling smooth transmission of power from all four engines to the common power output shaft. One or more of the engines can be clutched out if less than maximum power is required.

Check your power needs with a Chrysler Industrial Engine Dealer. Ask him about optional equipment too. Remember, Chrysler Power is not expensive. Production-line methods adapted to specialized industrial engine building provide a custom-built engine at mass-production prices. If you prefer, write: ***Dept. 127, Industrial Engine Division, Chrysler Corporation, Trenton, Michigan.***

CHRYSLER *Industrial Engines*

HORSEPOWER WITH A PEDIGREE

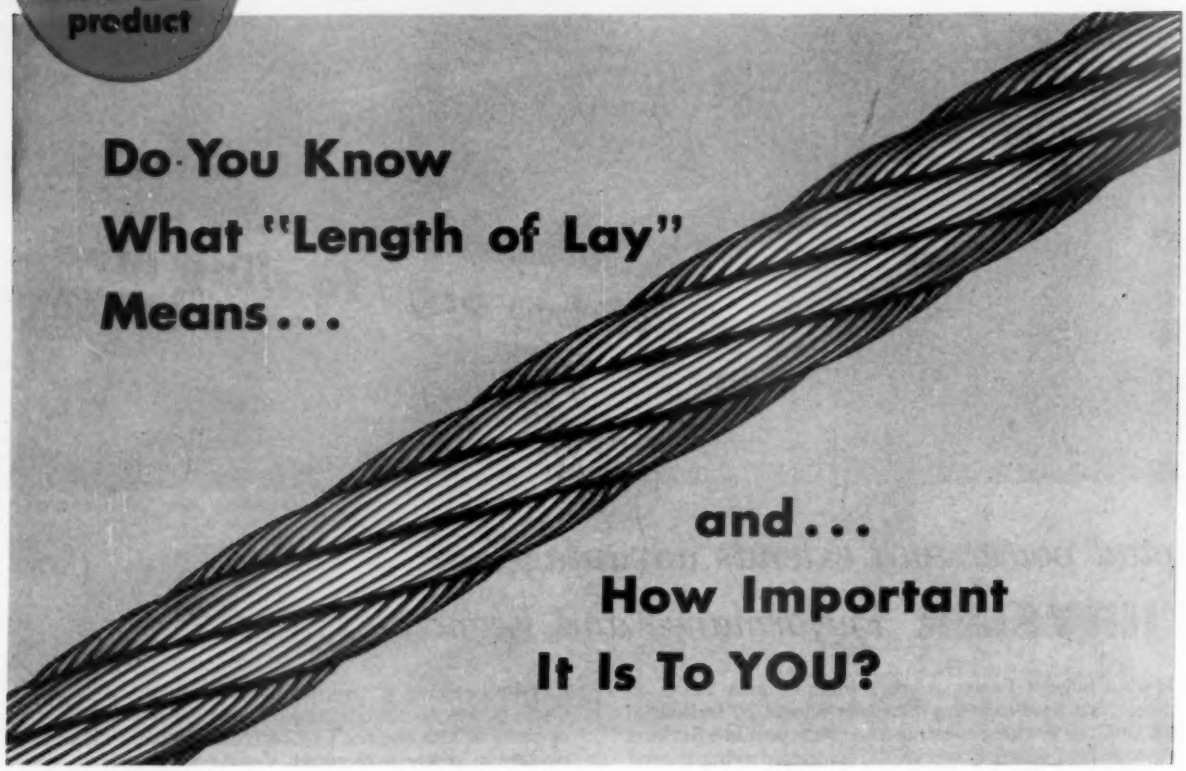


AGRICULTURE • INDUSTRY • CONSTRUCTION • OIL FIELDS

an ACCO product

AMERICAN CABLE

"GREEN STRAND" WIRE ROPE



Length of lay is the distance allowed for a strand to make one complete turn around the wire rope. This distance varies depending upon the construction and diameter of the rope, and upon the service requirements. The service factors which must be considered are elasticity, flexibility, stability, resistance to abrasion, and strength.

Elasticity is desired in order that a wire rope may absorb the application of loads gradually and not with sudden shock. The shorter the lay, the more elasticity in the rope. The reverse is also true.

Flexibility is that quality which a rope possesses which permits it to be flexed or bent around sheaves and drums. This property is desired from a standpoint of fatigue resistance of wires in a rope when subjected to bending stresses. An increase in length of rope lay tends to make the rope less flexible. This does not necessarily mean that a rope with a longer lay would also have less resistance to bending fatigue with which the term flexibility is often confused.

Stability of construction can be described best by observing the result of twisting the ends of a towel in opposite directions. You will find that the structure becomes harder with the increase in the amount of twisting. It will resist distortion when outside compressive force is applied. The same is true in a strand or in a finished rope. In effect, the shorter the lay the more it will resist crushing.

Abrasion resistance would seem to require more and larger crown wires per foot exposed to wear. Shortening the lay exposes more crown wires and makes the rope more flexible so larger diameter wires can be used. Then it becomes a matter for our engineers to set the length of lay to provide abrasion resistance but not at the expense of the other factors.

Strength of a wire rope is definitely influenced by the length of its rope lay. Of two ropes, identical except for their rope lay, the one with the longer lay will be stronger. Although the shortening of lays tends towards certain desirable conditions, a critical point is always reached beyond which the lay cannot be shortened without making the rope stiff.

If all this sounds mighty complicated, forget it. We don't expect you to become a wire rope engineer. That's our job—to engineer and make the best possible wire rope for you. In our "Wire Rope Recommendations for General Contractors" you will find the correct constructions of TRU-LAY Preformed "Green Strand" for your equipment. See your American Cable distributor or write us for a copy of **No. 128-B.**

ACCO

American Cable Division

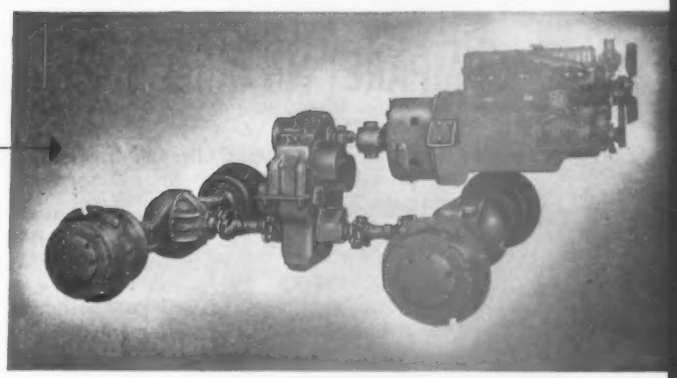
AMERICAN CHAIN & CABLE

Wilkes-Barre, Pa., Atlanta, Chicago, Denver, Houston, Los Angeles, New York, Odessa, Tex., Philadelphia, Pittsburgh, Portland, Ore., San Francisco, Bridgeport, Conn.

plus ACCO Registered Wire Rope Slings

Here's Why The **MICHIGAN** *Tractor Shovel*
WILL DO MORE WORK FOR YOU!

* *This Power Train — from engine to tires — engineered and manufactured by Clark*



* **CLARK TORQUE CONVERTER** — 3-to-1 multiplication factor provides maximum torque *when it is needed.* Precise control in inching and digging.

* **CLARK POWER-SHIFT TRANSMISSION** —no conventional clutch; four speeds forward and reverse—direction control by lever on the steering column.

* **CLARK PLANETARY DRIVE AXLE** — final reduction in the wheel reduces the torque load on all gears and shafts.

RESULT — easier operation, utmost accessibility and simplicity of servicing, highest efficiency in shovel handling.

ADD greater weight and more horsepower than any front-end loaders of comparable capacity, and you see why you can Move More with a MICHIGAN*.

*A Trademark of Clark Equipment Company

For full information send for the MICHIGAN Tractor Shovel Fact-Folio —specifications, action photos, magazine article. The coupon will bring your copy.

CLARK EQUIPMENT

CLARK EQUIPMENT COMPANY, Construction Machinery Division
452 Second Street, Benton Harbor, Michigan, U. S. A.

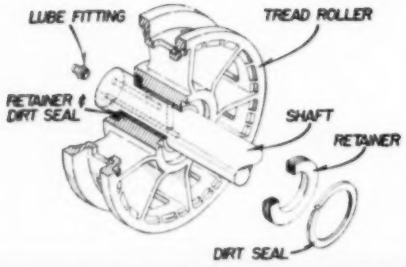
Please send the MICHIGAN Tractor-Shovel Fact-Folio

Name_____ Title_____

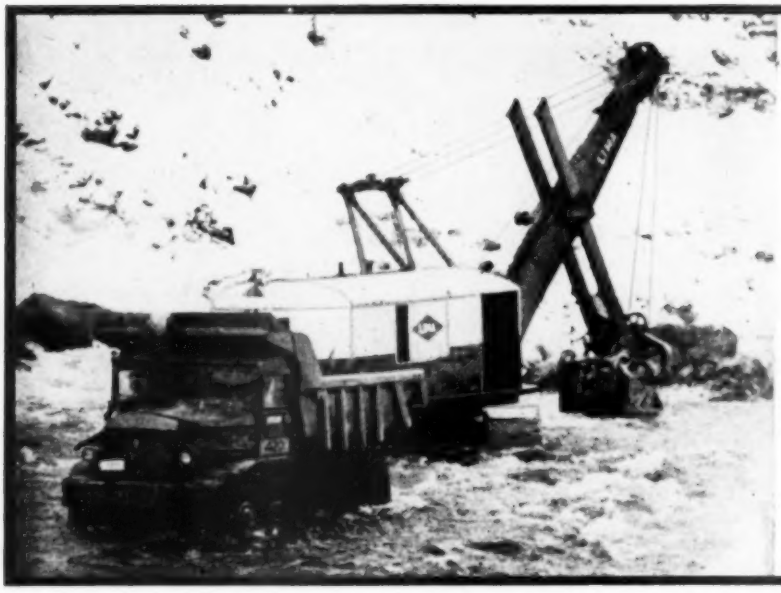
Firm Name_____

Address_____

City_____ Zone_____ State_____



LIMA DIRT SEALS CUT DOWN-TIME AND MAINTENANCE COSTS



This LIMA shovel, demonstrates the importance of LIMA'S dirt seals and grease retainers.

In such work, abrasive material which wears out the bushings and shafts of ordinary shovels is excluded. LIMA seals the lubricant in and dirt out, thereby reducing friction and prolonging the life of bushing, roller and shaft.

COMPARE! No other machine gives you as much as LIMA!

1. Bronze bushings in tread, idler and drive rollers are protected by piston-type dirt seal rings and retainers.
2. All gears, smaller parts and shafts which are subject to extra wear are flame or induction hardened for longer life.
3. Main machinery is placed well back of center of rotation to eliminate excess counterweight.
4. Anti-friction bearings, used at all important bearing points, reduce destructive friction, fuel consumption and lubrication requirements.
5. Big capacity drums and sheaves lengthen cable life by reducing the need for double wrapping and sharp bends in cable.
6. Full air controls on travel, hoist, swing and boom hoist, result in smoother, more precise operation, minimum maintenance and less operator fatigue.
7. Torque converter (optional) automatically adjusts speed to load requirements, minimizing shock loading, making performance smoother and faster.
8. Wherever you are, you can depend on skilled service and nearby warehouse stocks of parts to keep your LIMA on the job continuously.

COMPARE and you'll specify LIMA for shovels (¾ yd. to 6 yds.), cranes (to 110 tons) and draglines (variable).

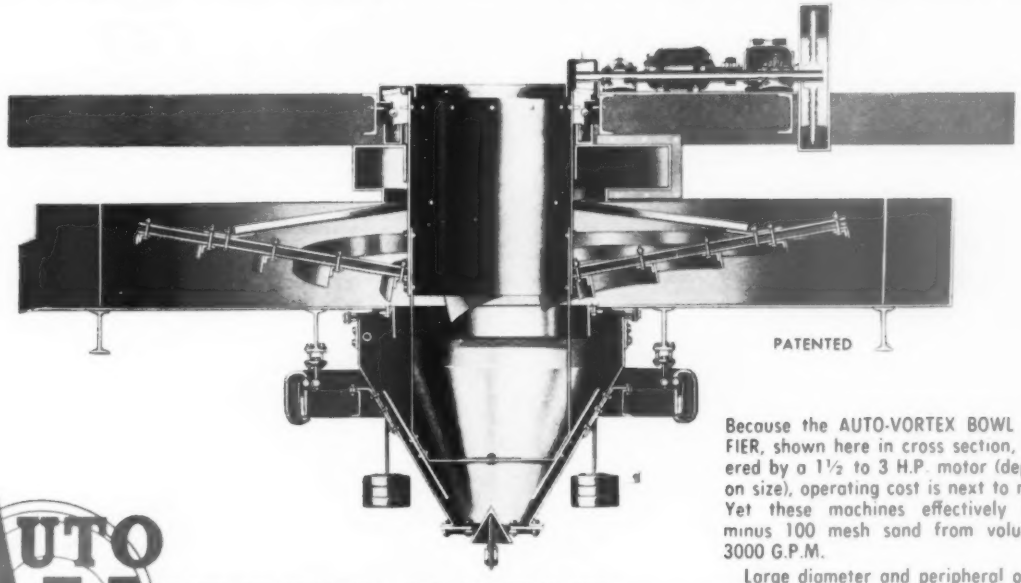
DISTRIBUTORS IN ALL PRINCIPAL CITIES OF THE WORLD

LIMA
SHOVELS • CRANES
DRAGLINES • PULLSHOVELS

BALDWIN BLH LIMA-HAMILTON
Construction Equipment Division

BALDWIN-LIMA-HAMILTON CORPORATION
Construction Equipment Division
LIMA, OHIO, U.S.A.

CAPTURE the FINES ECONOMICALLY

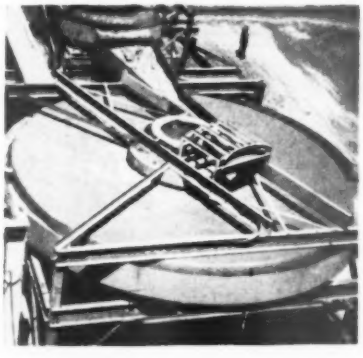


AUTO-VORTEX BOWL CLASSIFIERS

Because the AUTO-VORTEX BOWL CLASSIFIER, shown here in cross section, is powered by a 1½ to 3 H.P. motor (depending on size), operating cost is next to nothing. Yet these machines effectively recover minus 100 mesh sand from volumes to 3000 G.P.M.

Large diameter and peripheral overflow offers maximum settling capacity. Slowly revolving rakes draw the settled fines without agitation into the automatic discharge cone.

AUTO-VORTEX BOWL CLASSIFIERS, from 10′ to 30′ in diameter, are manufactured exclusively by the Charles E. Wood Co



At left: This 20′ AUTO-VORTEX BOWL installation in Missouri, typical of many throughout the country, has reduced the loss of fines to a negligible quantity . . . with practically no maintenance or operating cost.

At right: In South Beloit, Illinois, this 15′ BOWL CLASSIFIER recovers the fines after two Auto-Vortex CONE Classifiers have removed coarse and medium grades of sand. These three distinct products are then blended in the flumes below, in any desired proportion, with the Charles E. Wood Company blending valves.

These versatile AUTO-VORTEX CLASSIFIERS, operating on little power and practically no maintenance cost, may solve your problems of gradation and recovery of fines. Write for our bulletin on AUTO-VORTEX CONE and BOWL CLASSIFIERS!

CHARLES E. WOOD COMPANY

906 NORTH WATER ST. • MILWAUKEE 2, WISCONSIN

BIG HOLES

EVEN IN THE TOUGHEST GOING

BUCYRUS ERIE

A balanced drilling motion that produces outstanding hole footage even in the toughest drilling — that's what you get with Bucyrus-Erie's big-hole 50-T and 29-T churn-type blast hole drills. Drilling speed, length of stroke, and tool weight are all coordinated to provide a concentration of maximum energy where it counts most — at the bottom of the hole.

Striking up to 55 blows per minute, these Bucyrus-Erie drills maintain a rapid, even drilling pace. With the sharp hit-and-snap-up action provided by the derrick head shock absorber, each drilling blow effectively shatters rock. Rigid construction, big derrick capacity, and plentiful reserve power permit handling extra heavy tool strings.

For fast profitable operations, standardize on Bucyrus-Erie blast hole drills — the rigs that put down the big ones even in the toughest formations. Write for complete details on these machines for large diameter blast holes — the 50-T for 9" to 12" holes, the 29-T for 6" to 9" holes.

7B54

BUCYRUS-ERIE COMPANY
South Milwaukee, Wisconsin

WHERE EXPLOSIVES RESEARCH PAYS OFF

To blast 305,000,000 tons of stone and nonmetal materials for America's ever-growing construction, road building, and steel industries requires more than 166,000,000 pounds of dynamite annually. Here, as illustrated above, is where explosives research pays off. Note the excellent fragmentation which minimizes secondary blasting . . . the low stone pile which increases and speeds up the production of the shovels.

Such results come not only from specially developed explosives and blasting supplies, but also by using the most modern blasting methods. Hercules' continuous research and extensive knowledge of field conditions are important to economical and efficient blasting in quarrying, coal mining, metal mining, and construction.

HERCULES POWDER COMPANY

Explosives Department, ***946 King St.*** *Wilmington 99, Del.*
Birmingham, Ala.; Chicago, Ill.; Duluth, Minn.; Hazleton, Pa.; Joplin, Mo.; Los Angeles, Cal.; New York, N. Y.; Pittsburgh, Pa.; Salt Lake City, Utah; San Francisco, Cal.

WHAT'S HAPPENING In Other Fields of Interest to Rock Products Industry

July, 1954

The new highway authorization bill (H.R. 8127) has now been passed by Congress and signed by President Eisenhower. The bill, as finally passed, contains record authorizations for highway construction, with $966,000,000 to be expended in each of the next two fiscal years.

* * * * * * * * * *

Deliveries of new domestic freight cars to the American railroads totaled 4038 in April, 1954, compared with 4823 in March of this year, and 6839 in April, 1953, as reported by Missouri Pacific Lines. Orders for 909 freight cars were placed by the railroads in April. The backlog of cars on order, as of May 1, 1954, was 17,817, compared with 20,966 a month earlier.

* * * * * * * * * *

Heavy construction awards, nationally, totaled $5074 million for the first 20 weeks of 1954, or 16 percent below the record-high, 1953 volume of $6039 million, as reported by Engineering News-Record. Private construction is continuing high, with housing contracts totaling $1660 million for the 20-week period, or 3 percent above the previous high reported in 1953. Commercial building contracts of $480 million for the 1954 period were up 24 percent over the same period in 1953.

* * * * * * * * * *

What's claimed to be the largest solar furnace in the country was recently placed in operation at the San Diego division of Consolidated Vultee Aircraft Corp., which plans to use the unit's intense heat to aid its research on metals and ceramic materials. The unit contains a 10-ft.-dia. polished aluminum mirror, formed into a parabolic reflector which draws its power from a 10,000-deg. heat source—the sun's surface. The rays are collected by the mirror and reflected to a focal point where materials being tested are held by metal jaws. When sun conditions are ideal, the furnace reportedly can develop a temperature of 8500 deg. F., in comparison with 5800 deg. of an oxyacetylene torch. According to reports, the unit's intense heat can melt a steel bolt in a matter of seconds.

* * * * * * * * * *

Construction contract awards, in the 37 states east of the Rockies, totaled $5,592,632,000 for the first four months of 1954, an increase of 8 percent over the same period of 1953, according to an F. W. Dodge Corp. report. Non-residential awards of $2,079,276,000 were up 9 percent over the 1953 period, while residential awards of $2,435,125,000 were up 13 percent, and public works and utilities, with a total of $1,078,231,000, were down 4 percent. Total awards for the month of April were reported at $1,691,868,000, or 11 percent above March, and 3 percent lower than the April, 1953, figure which included an unusually large amount of Atomic Energy Commission projects. Non-residential awards of $605,427,000 were up 14 percent over March, but 11 percent lower than in April, 1953; residential awards of $796,133,000 were up 19 percent over March, and 18 percent over April, 1953; public works and utilities totaling $290,308,000, were down 11 percent from March, and 25 percent from April, 1953.

* * * * * * * * * *

As recently reported by Secretary of Commerce Sinclair Weeks, an "overwhelming majority" of American working men back the administration proposal for a secret strike vote. A "Gallup poll" reportedly revealed that three out of four workers favored putting the strike-ballot requirement into the Taft-Hartley law. As stated by Mr. Weeks, who has taken an active part in plans for labor law revisions, workers are often reluctant to vote against a strike called by union officers because of fear of reprisals.

* * * * * * * * * *

Another sizable lime-stabilized road, about ten miles in length, is to be constructed near Fort Worth, Texas, as recently reported in "Limeographs." The lime will be applied to the road, for the first time, as a thin slurry instead of on the usual dry basis.

WHAT'S HAPPENING

Contract awards for future school construction in the 37 states east of the Rockies set new records far above last year's levels during April, as well as during the first four months of this year, as reported by F. W. Dodge Corp. Contract awards reported in April for school and college buildings (including additions and major alterations) totaled $156,554,000, which was 17 percent higher than the previous April record set last year. Contract awards for school and college buildings have grown steadily since 1946, when awards for April of that year totaled $9,000,000. Awards for the first four months of this year indicated a 34 percent increase over the same period of 1953. Peak growth now is in the elementary grades, but as time passes, the squeeze will be felt more in the higher grades and in college. Continued high levels of construction will be necessary, not only to meet the needs of growing numbers of students, but also to replace school buildings which become obsolete or unusable.

* * * * * * * * * *

Henry J. Kaiser Co., in its 40th-year anniversary report, has listed total assets of the Kaiser Companies at $925,000,000, with annual sales of more than $1,000,000,000. As of last November, the total funds employed in the business of the various Kaiser companies amounted to approximately $820,000,000, of which 97 percent was private capital and less than 3 percent was in the form of loans from the government. Of the seven companies in the Kaiser group, four are public stock companies, representing 57,000 stockholders. The percentage of interest held by the parent company in each of these firms were reported as follows: Kaiser Aluminum & Chemical Co., 48.25 percent; Kaiser Steel Corp., 75 percent; Permanente Cement Co., 30.39 percent; and Kaiser Motors Corp., 37.66 percent. Two companies are privately held: Kaiser Metal Products, Inc., of which Henry J. Kaiser Co. owns 57.71 percent; and Consolidated Builders, Inc., of which 22.5 percent is owned by the Kaiser company. The seventh firm is Kaiser Services, which is a non-profit organization that performs management and finance functions for the Kaiser enterprises.

* * * * * * * * * *

A large limestone mine near Wampum, Penn., is to be developed by the Air Force into an underground storage site and which, in the event of war, would also probably be used as a manufacturing site. Army engineers in Philadelphia are preparing plans and specifications, and a $158,415 contract for an engineering and architectural study has been awarded to a Rochester, Penn., firm. The 100-acre underground mine was formerly operated by Medusa Portland Cement Co.

* * * * * * * * * *

A new industrial flooring process, said to add the strength of iron to heavily traveled concrete surfaces, such as warehouse, machine shop or shipping floors, was recently announced in "Chemical Engineering." Named Metal-Seeded Dynapakt, the process features a 1/8-in. layer of iron-chip aggregate as a non-spalling, non-crumbling, non-slip armor over fresh Dynapakt concrete topping. Special heavy-duty power equipment used for the flooring operation is said to insure maximum conpactness and adhesion of concrete to metal.

* * * * * * * * * *

Commercial construction this year is due for a boost of at least 10 percent above last year's peak of $2.2 billion, according to the U. S. Chamber of Commerce. Although the increase is expected to be reflected in all kinds of commercial construction, particular emphasis was placed on expansion of office buildings and the great wave of shopping-center construction now sweeping the nation.

* * * * * * * * * *

Another dynamite theft has been reported—this time at a Jackson County, Mo., quarry. The theft involved 15 sticks of dynamite and 400 to 500 ft. of fuse. With an increasing number of such thefts being reported, it would be safety-wise for all quarry operators, or others handling explosives, to double-check their storage facilities to see that adequate locks are provided.

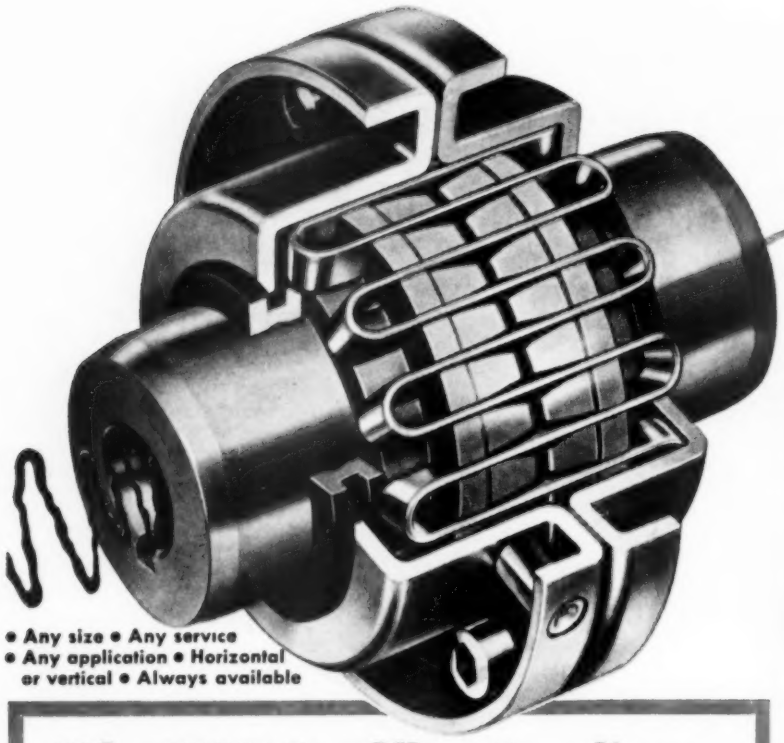
* * * * * * * * * *

A bill was recently introduced into Congress which, if passed, would appropriate $100,000,000 for a special network of atomic-age defense highways around major cities and potential target areas. The proposal was in the form of an amendment to the federal highway bill.

* * * * * * * * * *

United States exports of non-metallic minerals decreased to $89.3 million in January, 1954, from $101 million in December, 1953, as reported by the Bureau of the Census, U. S. Department of Commerce.

THE EDITORS



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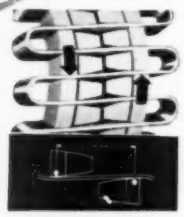
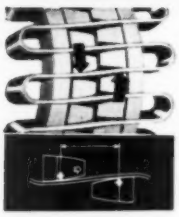
Exclusive FALK Steelflex grid-groove design smothers shock and vibration.

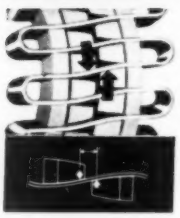
The damaging effects of shock and vibration can shorten the life of any connected machinery. Here is how the Steelflex grid-groove design overcomes these common enemies.



Under LIGHT LOADS
The gridmember bears only at outer edges of grooves. The long span between points of contact remains free to flex under load variations.



Under NORMAL LOADS
As load increases, the distance between supports on the grooves is shortened proportionately, but a free span remains to cushion shock loads.



Under SHOCK LOADS
Under extreme overloads, the grid-member bears fully on the grooves and transmits full load directly. The coupling remains flexible, within its rated capacity.

Why FALK Steelflex Couplings give the *finest* protection for connected machinery

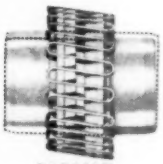
Maximum protection of connected machinery is best provided by Falk Steelflex Couplings because, thanks to their exclusive design, they overcome the damaging conditions of shock loads, shaft misalignment and vibration. How this unique multiple protection is made possible is shown at the right.

Falk Steelflex Couplings give the most economical protection, too, because they make connected machinery last longer and give better service. Furthermore, when actual coupling costs are figured per year of service, Falk Steelflex Couplings show substantial savings through their rugged all-steel construction, easy interchangeability and low maintenance requirements.

The basic Type F Steelflex Coupling—in 33 sizes to cover capacities from 2/5 through 70,000 hp per 100 rpm—meets over 90% of all industrial applications. Special or Dual Purpose Steelflex Couplings are available for problem applications. Write to Department 247 for engineering bulletin, including selection and dimension details.

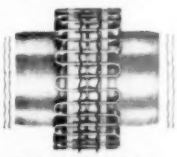
...Accommodates shaft misalignment and free end float

Basic maintenance procedure dictates regular inspection and correction of shaft alignment. Between inspections, Steelflex couplings provide protection by accommodating unavoidable shaft misalignment and end float. The gridmember which connects the two hubs of a Steelflex coupling is not fastened to either hub, so each hub can shift without imposing load on the other shaft.



PARALLEL MISALIGNMENT

ANGULAR MISALIGNMENT



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Research to Develop Profits from Waste Products

ALL SLIMES FROM WASHING OPERATIONS in the rock products industries, including sand and gravel, crushed stone and the many other nonmetallic minerals, contain valuable minerals if only ways to use them may be developed.

These minerals are of a great variety and they often represent a considerable tonnage. They may be considered as just waste products to be disposed of in the best way possible but it took substantial processing cost to convert them into slimes so that they could be discarded. Producers have an investment in slimes and about all that any of them are getting from this waste is costly disposal.

This all suggests that research for profitable use of the industry's waste products for their mineral values might well be worth the effort.

Phosphate Slimes Studied

The Florida pebble phosphate industry is an excellent example of methods employed by organized research in tackling the problem of profitable waste disposal. Adoption of froth flotation back in the nineteen-twenties made it possible for that industry to recover valuable fines in the 30- to 200-mesh size range, formerly wasted, and thus greatly increased production from existing operations. It became profitable to re-work old dumps for recovery of phosphate fines and to open deposits hitherto considered uneconomic because of the low ratio of pebble sizes in the matrix. Other deposits that were considered to have too high a ratio of overburden to phosphate have since been operated with success. This development and other applications of modern mining methods and ore-dressing practices resulted in tripling the life of the Florida phosphate fields.

That industry has not stopped research and is seeking to develop profitable uses for phosphate values still being lost in the effluent slimes. Many economic and technical difficulties are obstacles to recovery of this final increment, but they are being tackled from all angles. The fact that accumulating material settled in ponds is becoming more and more objectionable to outsiders is making the solution to the problem more urgent.

These slimes not only contain phosphate values but alumina and uranium oxide, which are in appreciable quantities when the vast tonnages involved are considered. Among potential uses that have been under consideration are the treatment of pasture lands with water suspensions of slimes, the use of slime minerals as a filler for fertilizers that would also add phosphorous pentoxide, use as filler for rubber and linoleum, and as a dried material to be mixed with high-grade concentrate to serve as a binder and flux for the reduction of elemental phosphorous in the electric furnace. An acceptable lightweight concrete aggregate has been produced in the pilot plant. Should beneficiation and extraction methods be perfected, the phosphate values have potential use for direct application to the soil and for the manufacture of superphosphate and phosphoric acid.

Physical and Chemical Values

The approach to finding profitable uses for slimes, by the Florida phosphate industry, is no different than it might be for other rock products industries. Most waste is predominately clay which might indicate the possibility of lightweight concrete aggregate production provided that some form of pre-dewatering might satisfactorily reduce the cost of fuel for bloating the material.

Many rocks and gravels and sands have a variety of trace minerals which are present in the slimes from washing. It would seem that the presence of these minerals as an added premium might be useful in exploiting wastes as finely-divided fertilizer fillers.

Wasted fines from commercial sand and gravel plants sometimes may have the desired range of particle sizes accumulated, for re-processing into asphalt sands or other types, even though the desired sizes did not exist in the original matrix. We recall a large eastern operation that had very little fines below 80 mesh in its deposit. However, it employed reduction crushers and, over the years, had accumulated many thousands of tons of wasted material that later proved ideal for the production of asphalt sand on a large scale. Other possibilities are the processing of wasted materials into filter sands, engine sands and others used for their siliceous content.

Many slimes, and even dust from cement plants, it seems, should be put to use in agriculture even though their calcium carbonate content may be below set standards. There could be more of it applied per acre, and there are many soils that need the siliceous materials that are present for physical reasons and which could profit from trace elements and potash as well.

There seems to be a lot of possibilities to think about in connection with tailings piles.

Bror Nordberg

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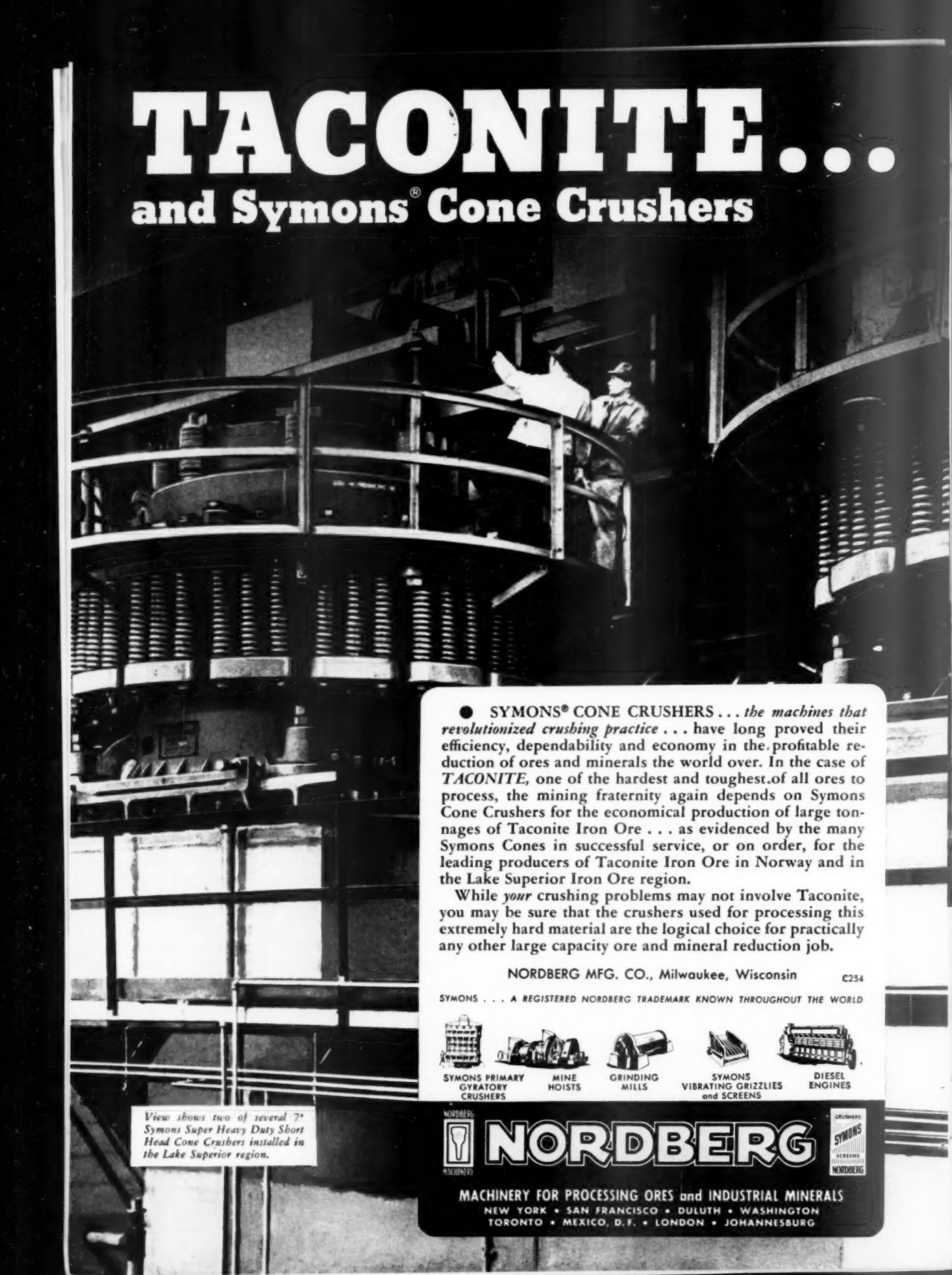
and Symons® Cone Crushers



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View shows two of several 7' Symons Super Heavy Duty Short Head Cone Crushers installed in the Lake Superior region.

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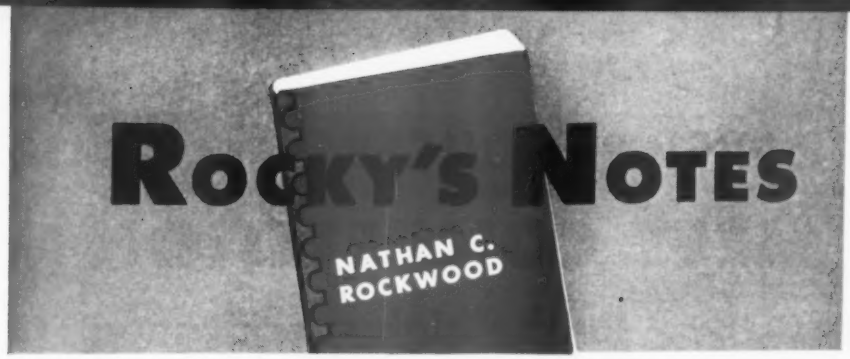


The Teamsters Union and Its Head Man

A CONSIDERABLE PART of the program at the annual conventions of the National Sand and Gravel and the National Ready-Mixed Concrete Associations, in Chicago last February, was centered around the industries' labor problems in 1953. Most of these problems arose from strikes by truck drivers in the large metropolitan areas, all apparently a part of a scheme hatched by the management of the international headquarters of the Teamsters union under Dave Beck, its new president. The net results of these strikes were admirably summarized by Vincent P. Ahearn, executive secretary of the two associations: "The strikes were prolonged and bitter. They exacted a terrible cost—to the public, to the employes and to the employers. Some of these strikes reflected internal warfare in the union; but they were all senseless and avoidable and they manifested on the part of the union leaders a contempt and a disdain for the public interest and for public opinion.

"In several of the cities, the union, confronted by a solid employer position, tried desperately to break up the group bargaining technique, but they failed in every case — a magnificent tribute to the group bargaining principle and a solid affirmation of the fact that the only possible way for our industry to deal with powerful and entrenched union organization is by forming our own organization and marshalling our combined strength against the terror tactics of the union.

"In each of the cities, the methods employed in finally ending the strikes were substantially different, even though the common lesson was learned that when our own employers organize to handle union and strike problems, we can get results otherwise unobtainable. While the unions will try desperately to find a soft spot in our group defenses, we know that they respect employers who have the good sense and the courage to fight the unions when they are wrong."

There is no reason to believe that the lessons learned by these locals of the Teamster's union have changed the plans of the International union to dominate the labor situation. There is every indication that President Dave Beck seeks to hold the No. 1 position in organized labor so long occupied by John L. Lewis, who is getting old, while Dave Beck is in his prime—59 years old. Nor is there any reason to believe that Beck is any less competent. Like Lewis he has extensive business interests, both those of his union, which is a wealthy one, and private interests in real estate, insurance, beer distributing and numerous others in Seattle, Wash., and the West Coast generally. He has been rated at better than a millionaire, and his salary as head of the Teamsters is $50,000 a year plus a liberal expense account. In spite of his present luxuriant living conditions, he came up the hard way and is reputed to be as tough and ready for a scrap as the typical truck driver. However, his Seattle life has shown he is by no means devoid of a sense of civic and community responsibility.

A Growing Power

The *Wall Street Journal* in recent months has published a series of articles about Beck and his Teamsters' union, which in itself is significant because it shows that leaders in industry and finance are now as much interested in dominant leaders of labor as in men of their own calibre in industry management. Most of the data on which these present Notes are based are derived from a perusal of this series. The emphasis is on the ambitions and character of Dave Beck, from which the reader may draw his own conclusions as to what may happen. There is obvious respect for his capabilities. Like John L. Lewis, and his Miners' union the Teamsters' union is by no means confining its membership to men who are in any one industry (only about 1000 real teamsters are left) or to motor-truck drivers. The *Journal* says: "The international brotherhood now draws its strength from young women who pack Popsickles in Youngstown, Ohio; from optical technicians in Seattle spectacle shops; from folks who fill Gerber Baby Food jars in Rochester, N. Y., and orders from Dr. Scholl's foot remedies in Chicago; from men who box Carnation milk in Houston; from ladies who poke pennies into vending machine cigaret packages in Cleveland and sort rags on the West Coast."

The Teamsters' union is already 15 percent larger than its nearest C.I.O. rival — the Automobile Workers, and twice as large as John L. Lewis' United Mine Workers; in other words it already has about 1,500,000 members, and Beck has publicly announced that he will soon have 3,000,000. It is the fastest growing union under its present membership drive. However, its methods of obtaining membership are something more than salesmanship, for which Beck is said to have made quite a reputation, both for his enterprises and his personal services to labor. Quoting the *Wall Street Journal:* "The union believes in rewarding its executives well; its constitution specifies that organizers working under orders of Mr. Beck shall be paid up to $20,000 a year, and when on the road they get transportation plus $22.50 a day for hotels and incidentals. This document gives Mr. Beck himself $50,000 a year and assures that he and his wife will, in addition, have all expenses paid when working, taking periodic rests and traveling in this country or abroad. Mostly Mr. Beck just works; he's talking of a South American jaunt, but has decided he can't make it.

"In running his union like a business, Mr. Beck has one enormous power; he can place any local under a "trustee" named by himself, whenever he deems it "for the benefit of the membership." This functionary has complete command over the local union, and can remove its elected officers, until and unless an appeal is successfully carried to the international body's executive board or its convention, held every fifth year. About 35 trusteeships now exist, according to Mr. Beck; some veteran teamster leaders claim the other thousand-odd locals are often kept in line by the threat of trusteeship."

Enter Local "Pug-Uglies"

This year producers in our industries have privately complained that the officers of locals of the Teamsters union, with whom they have been on cooperative if not friendly terms, are being replaced by imported "pug-uglies" who are demanding "the world with a fence around it." Evidently the preceding paragraph of quotation explains how this can be done and the following quotation may explain why it is done: "Most of Mr. Beck's political objectives are immediate and practical; for instance, he aims to get from Congress or the National Labor Relations Board a clear-cut ruling that men who both own and drive trucks are not businessmen but employes (he has already organized many of them, but rebellion flares). Taking the long view, however, he has publicly warned that if the Taft-Hartley Law is kept on the books the unions may well be forced to 'develop in this country a temporary political machine of perfection within the trade union movement' and comparable to the British Labor Party."

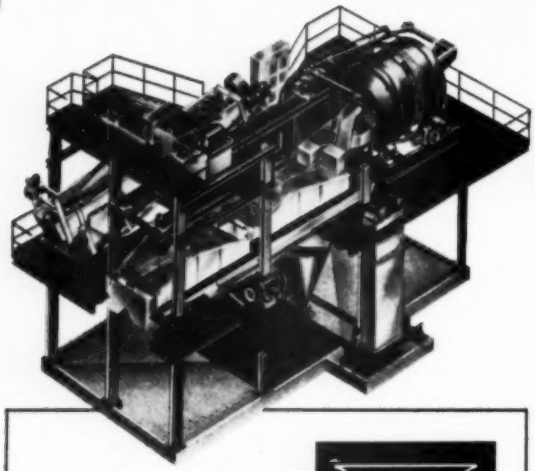
The Teamsters' union has scant respect for its contemporaries in the American Federation of Labor. It will not agree to a non-raiding pact. Recently it got into a controversy with the A.F. of L. Office Workers' union, in Washington, D. C., to which the Teamsters' union own office employes

(Continued on page 95)

SAND AND GRAVEL PRODUCERS...

CAN YOU MEET COMPETITION

for the high specification aggregate market?



✓ INVESTIGATE WEMCO HMS MOBIL-MILLS

Because they provide a practical, low cost answer to the problem of upgrading local deposits to meet increasingly rigid aggregate specifications. Using modern heavy media separation, WEMCO MOBIL-MILLS have consistently produced high specification gravels under many conditions where mechanical scrubbing methods fail.

MOBIL-MILLS OPEN NEW FIELDS...

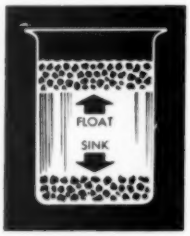
Here is a typical example of successful gravel treatment with WEMCO HMS equipment... A large eastern producer was faced with the necessity of upgrading river gravel for use as a high specification concrete aggregate. Preliminary tests showed that the gravel was amenable to HMS processing at specific gravities ranging between 2.30 and 2.50. Rattler and sodium sulphate tests showed that a low weight float product could be rejected while the sink product, made up of sound premium aggregate, remained well within specification limits. As a result of these tests, a 225 TPH WEMCO-equipped HMS plant was installed and has been profitably producing premium gravel for more than two years. In addition, the producer found that dredging operations could be expanded into contaminated areas previously considered unusable. Streaks of granulated coal and other deleterious materials are completely removed by HMS methods, opening up entirely new deposits for future operation.

YOU CAN MEET COMPETITION WITH WEMCO MOBIL-MILLS...

More and more gravel producers are faced with the problem of upgrading poor deposits to meet high aggregate specifications. WEMCO MOBIL-MILLS are the **profitable answer** to this problem when inferior deposits prove amenable to HMS processing and when simple cleaning methods can't upgrade them to specification. So why not investigate HMS processing with MOBIL-MILLS **now.** Find out for yourself how a WEMCO MOBIL-MILL can cut costs, strengthen your competitive position and extend the life of gravel deposits.

GET ALL THE FACTS ... without obligation. Just call or write to your nearest WEMCO representative.

PRECISE CONTROL WITH HMS...



HMS is a simple sink-float process utilizing differences in specific gravity to float off light, unsound material, leaving hard, sound, premium aggregate. The sink-float principle gives economical and precise control of aggregate quality within limits established by the varying specific gravities of the basic constituents.

ONLY WEMCO MOBIL-MILLS HAVE THESE ADVANTAGES FOR AGGREGATE PROCESSING:

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- **Pre-fabricated,** ready to install
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LABOR RELATIONS TRENDS

Dallas Ready-Mixed Concrete Producers Lose To Union in Federal Court — City and Suburban Streets Held To Be Avenues of Interstate Commerce

By NATHAN C. ROCKWOOD

IN OUR APRIL 1953 ISSUE on this page we reported the National Labor Relations Board's decision against the Dallas Concrete Co. for alleged refusal to bargain collectively with the local of the A.F. of L. International Teamsters' union, and other alleged violations in that connection of the National Labor Relations Act and the Taft-Hartley Act. Some 11 out of 19 ready-mixed concrete truck drivers have claimed union membership, or the union organizer claimed membership for them; the employer doubted the genuineness of the whole transaction and frankly tried to discourage their employes from joining, and failed to recognize the union. The producer stuck to his guns, and the N.L.R.B. had to go to the U. S. Circuit Court of Appeals, Fifth Circuit (New Orleans, La.) for an enforcement order.

On April 22, 1954, this court handed down a decision against the producer, the full text of which is as follows: "This is a petition to enforce an order of the National Labor Relations Board, requiring the respondent to cease and desist from refusing to bargain collectively with the union, and from interfering with, restraining, or coercing its employes in the exercise of their organizational rights. Respondent, a Texas corporation with its principal office in Dallas, is engaged in the manufacture, sale, and distribution of ready-mixed concrete. On June 21, 1951, eleven of respondent's nineteen truck drivers signed applications for membership in the union. After the receipt of these applications, the union's representative wrote respondent a letter, informing it that a majority of the ready-mix drivers had designated the union as their bargaining agent, requesting a meeting, and offering to prove the union's claim of representation. The respondent never replied to this letter, and on July 26, 1951, the union initiated these proceedings.

Producer's Defense

"The principal defense relied on by respondent is that the unit designated by the union as "Ready-Mix Drivers" is ambiguous, and that the union did not represent a majority of said unit. Respondent asserts, therefore, that it was not and could not have been guilty of unfair labor practices. The board found that the unit designated by the union as ready-mix drivers consisted of the employes listed on respondent's payroll as 'truck drivers,' and rejected the respondent's contention that all or some of its other employes who drove ready-mix trucks occasionally, particularly four men classified on the payroll as 'mixer-mobile operators,' were so closely identified with the truck drivers that they too were members of the unit termed ready-mix drivers. There is a clear distinction between the truck drivers and the mixer-mobile operators, as the latter are primarily operating engineers engaged in construction work and not truck drivers engaged in making deliveries. The mixer-mobile operators receive more specialized training and a higher rate of pay, and are required to be members of the Operating Engineers union as a condition of employment.

"The evidence shows that the union intended to represent the ready-mix drivers, and referred only to those 19 employes designated by the respondent as truck drivers. The union never sought to organize any of the other employes of respondent. Furthermore, it is apparent from the record that respondent itself recognized the ready-mix drivers as including only those employes who regularly drove ready-mix trucks and who were carried on the payroll as truck drivers, since, upon receipt of the letter from the union, respondent's manager questioned only those employes classified as truck drivers. The president of respondent testified at the hearing that, at the time he got the letter, he did not know that any of the truck drivers were members of the union. In its answer to the complaint filed by the union, the respondent asserted that a 'plant-wide unit is appropriate and it is improper to confine that unit alone to truck drivers.' There is no substantial evidence in the record to to support respondent's contention that the union's request for recognition was ambiguous with respect to the unit, or definitive of a unit that embraced more employes than the group wherein the union had a majority.

N.L.R.B. Upheld

"The evidence shows further that the respondent interfered with the organizational efforts of the ready-mix drivers. Respondent interrogated these employes concerning their union activities and sympathies, threatened to close its plant rather than recognize the union, unilaterally granted them a wage increase for the purpose of discouraging their organizational activities, and promised economic benefits to those employes who would abandon the union. This conduct clearly constituted a violation of Section 8 (a) (1) of the National Labor Relations Act. N.L.R.B. v. Booker, 180 F.2d 727. The evidence establishes a refusal to bargain by the respondent, as the latter failed to recognize or meet with the union, which represented a majority of the employes in the designated unit. The board found that the employe group represented by the union was an appropriate unit within the meaning of Section 9(b) of the Act, which provides that the board is invested with discretion to decide who is the appropriate bargaining unit in each case. The board's determination in this regard will not be disturbed in the absence of a showing that it was so unreasonable and arbitrary as to exceed the board's power. We are of the opinion that the decision of the board was reasonable and clearly within its power. Packard Motor Co. v. N.L.R.B., 330 U.S. 485.

"The findings of the board being supported by substantial evidence in the record as a whole, the petition for enforcement is granted.

"Enforced."

Concrete Haulers' Case

On this page of our November, 1953, issue we reported a similar case involving the Concrete Haulers, Inc., of Dallas, and the Wamix, Inc., of Fort Worth, Tex., ready-mix concrete producers. In this case eight of fourteen truck drivers claimed to have established bargaining rights, which the companies (under the same ownership) refused to recognize. The N.L.R.B. took this case also to the U. S. Circuit Court of Appeals, Fifth Circuit, for enforcement. The court's decision was handed down May 6, 1954. This decision was very similar to the one in the Dallas Concrete Co. case, although it involved an additional point in that it had to be determined whether there was one or two employers.

The details were somewhat different, as described in the court's words: "On May 25, 1951, eight of Concrete Haulers' 14 truck drivers and one dispatcher signed union cards, after which the union representative called on respondents' president, offered to prove the union's representation of said truck drivers, and requested that respondents enter into negotiations with the union for a contract. At the above meeting and also at one held on June 6, 1951, the employer impliedly recognized the union as being the representative of the truck drivers, but stated that he would not sign a contract because his attorney had advised that to do so would be illegal. On the morning of June 7, 1951, he made a speech to his truck drivers, in which he told them that he did not recognize the union, and would not sign a contract because the state law did not require it; that he was not

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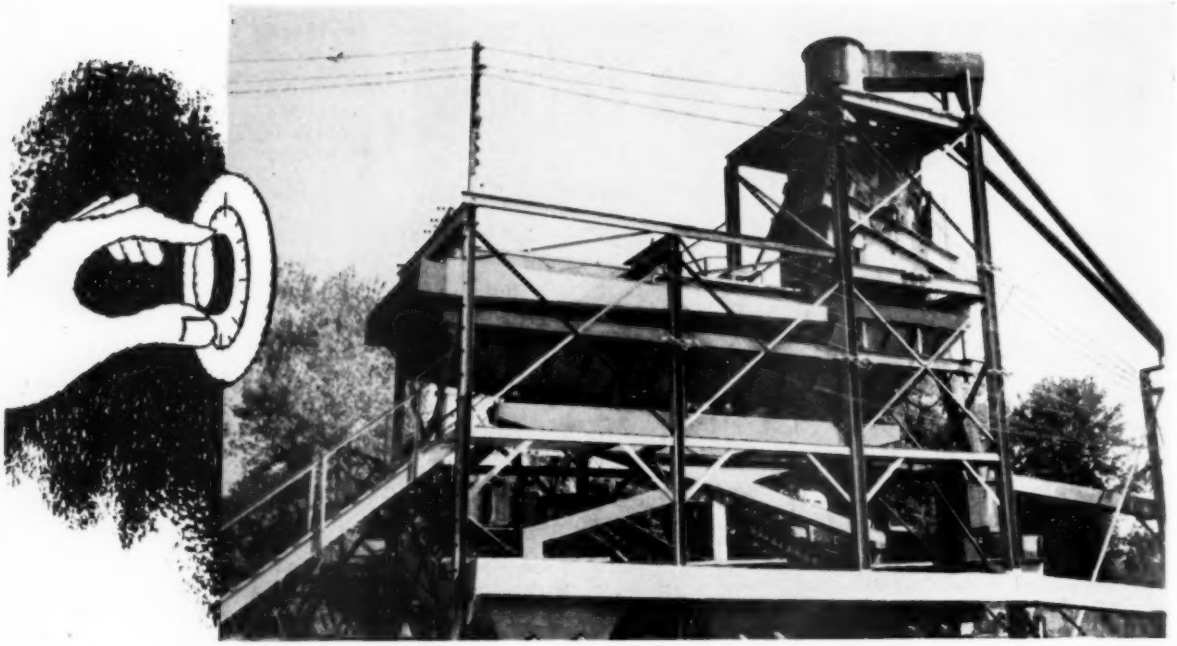

AN EAGLE "RIGHT COMBINATION" TO PRODUCE A PROFITABLE COMBINATION

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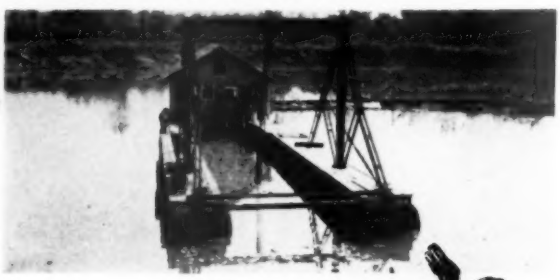
This Eagle Section consists of a 10′ x 32′ dual Water Scalping Tank for removing excess water and provide preliminary classification, dual compartment collecting-blending tray and flumes and three double screw, long weir fine material washer-classifier-dehydrators—one 22″ x 25′ and two 24″ x 25′ units. These three screw units each provide a different blend or gradation of sand—uniformly and economically. At far right in the illustration is an Eagle Log Washer for scouring and abrading material from top deck of screen. With this highly efficient set-up Gosport can profitably produce any blend of sand required.

Other Eagle Complete Section installations are detailed in New Catalog 54, sent on request.



PRODUCTION STARTS WITH AN EAGLE "SWINTEK" DREDGING LADDER AT THE GOSPORT GRAVEL COMPANY, INC.

All material at Gosport's plant is pumped from a pond. Their dredge is equipped with an Eagle "Swintek" unit. The traveling screening chain keeps boulders out of suction line—eliminates shut-downs. Cutter bars on chain agitate deposit—increase intake of solids—save wear on pump. Gosport's "Swintek" is paying its way.

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PEOPLE in the news

Named President

ELMER R. COATS has been named president of the Mutual Materials Co., Seattle, Wash. He succeeds J. B. Sunderland who remains as chairman of the board. O. H. McGill remains as

Elmer R. Coats

secretary-treasurer. Stanley J. Frazier, who has been with the company since 1951, has been appointed general manager. Mr. Coats, a graduate of the University of Missouri, Columbia, Mo., joined the firm in 1929 and has served as vice-president and sales manager since 1935. He is a member of the board and past-president of the Unit Masonry Association of Washington. He has just served a two-year term as president of the National Autoclave Building Products Association, and is at present chairman of the Sand-Lime Brick Section.

Heads Phosphate Division

RUDOLPH S. RYDELL has been named president of the Coronet phosphate division of Smith-Douglass Co., Inc., Coronet, Fla., to succeed John R. Sheffield. Mr. Rydell was formerly associated with the plant food division of Swift and Co., Chicago, Ill. Ralph B. Douglass, president, also announced that executive offices of the Coronet division have been moved from New York to Norfolk, Va., and other offices connected with the operations have been transferred to Plant City, Fla., where the phosphate mines are located.

Kelley Island Promotions

N. D. SHAFER, who has been superintendent of the Marblehead, Ohio, plant of the Kelley Island Lime and Transport Co., Cleveland, Ohio, has been appointed general manager of the Presque Isle Corp. and will be in charge of the new fluxstone operation now under construction near Alpena, Mich. Mr. Shafer, who studied civil engineering at West Virginia University, Morgantown, W. Va., joined the company in 1944. Charles E. Walmsley, who has been associated with Kelley Island since 1923, succeeds Mr. Shafer as superintendent at Marblehead, where he was assistant superintendent. Jerry Jankovic, an engineering graduate of Purdue University, Layfette, Ind., has been appointed assistant superintendent at the Buffalo, N. Y., plant.

Executive Director

JOHN M. BARNHART has been appointed executive director of the Industrial Mineral Fiber Institute, Inc., New York, N.Y., an association of manufacturers of mineral wool insulation in the United States and Canada. A graduate of mechanical engineering of Rensselaer Polytechnic Institute, Troy, N.Y., Mr. Barnhart

John M. Barnhart

served in the U. S. Air Force for five years during World War II. He was formerly with Western Electric Co.

Elected President

ROGER MACARTHUR has been elected president of the American Bildrok Co., Chicago, Ill. He succeeds Thomas H. Coulter, who has resigned to become chief executive officer of the Chicago Association of Commerce. Mr. MacArthur was formerly special projects engineer in the research division of National Gypsum Co., Buffalo, N.Y. A native of Danvers, Mass., he was graduated from the Massachusetts Institute of Technology in 1927, and continued graduate study at the University of Pittsburgh. He was associated with the Mellon Institute of Technology at Pittsburgh before he joined National Gypsum Co.

Vice-President Retires

B. A. MACDONALD, vice-president and assistant general manager of the Northwestern States Portland Cement Co., Mason City, Iowa, has retired after 35 years of service, but will continue as a member of the board of directors. Mr. MacDonald joined the company in 1919 as sales manager. He was named assistant to the president in 1929, and was elected vice-president and assistant general manager and a director in 1934. Prior to joining the company he was sales manager for Marquette Cement Manufacturing Co.

Heads Engineering School

KENNETH B. WOODS has been named to succeed Ralph B. Wiley as head of Purdue University's school of civil engineering and engineering mechanics, and as director of the research project, when Prof. Wiley retires June 30. Mr. Woods, professor of highway engineering and associate director of the research project, has been a member of the faculty since 1939. The research project is carried on in cooperation with the Indiana State Highway Department.

Division Managers

HAROLD A. PRICE has been named manager and Jack A. Streblow, sales manager of the newly formed structural concrete products division of

Harold A. Price

Basalt Rock Co., Inc., Napa, Calif. Mr. Price, who will be in charge of all operations including engineering,

Jack A. Streblow

manufacturing and construction, was formerly sales manager of the Strestcrete division. Mr. Streblow was formerly in charge of the precast concrete department. Both departments have been joined to form the structural concrete products division. Ross Rudolph has been appointed technical representative of the new division.

Officers Elected

MARIETTA CONCRETE CORP., Marietta, Ohio, announced the election of the following officers at the recent annual stockholders' meeting: Frank L. Christy, president; F. Leonard Christy, vice-president of sales; R. Neil Christy, vice-president of engineering; C. Boyd Ross, vice-president of manufacturing; J. D. Ross, general manager, Baltimore, Md., plant; Robert V. Christy, superintendent, Marietta, Ohio, plant; and Harold W. Miller, comptroller. Also announced was the re-election of the board of directors which includes Frank L. Christy, F. Leonard Christy, R. Neil Christy, Charles D. Fogle, C. Kenneth Smith, C. Boyd Ross and J. D. Ross.

Plant Managers

ARCHIE H. ADAMS, assistant plant manager of the Buffington, Ind., plant of Universal Atlas Cement Co., New York, N.Y., has been appointed manager of the plant. Roald W. Nygaard, supervisor of industrial relations, Buffington plant, has been appointed assistant plant manager.

Mr. Adams was born in Coal City, Ala., and graduated from Alabama Polytechnic Institute, Auburn, Ala., with a B. S. degree in chemical engineering. He joined the company in 1936 as operations clerk at the Leeds, Ala., plant and later became chemical engineer. Returning to the company after four years in the U. S. Navy, he became assistant plant manager at Fairborn, Ohio. In 1950, he was appointed assistant plant manager at Buffington, Ind.

Mr. Nygaard was born in Chicago, Ill., and graduated from the University of Illinois, Urbana, Ill., in 1935. He joined Carnegie-Illinois Steel Corp. as clerk in 1930, became assistant to division superintendent of Gary Works in 1941, and four years later transferred to the Pittsburgh office as labor analyst. In 1948, he returned to Gary Works as assistant to division superintendent, later becoming supervisor of industrial relations at the Buffington plant.

Vice-President Retires

FRANK M. TRAYNOR, vice-president of the Florida division of the General Portland Cement Co., Chicago, Ill., has retired after 27 years of service, but will continue to serve as a member of the board of directors and as a consultant. He will be succeeded by Devereux Bacon, Jr., who will continue to serve as sales director of the Florida division. Mr. Traynor joined the Tampa, Fla., plant in 1927, when the plant was under construction. He was appointed director of sales and later was elected vice-president and a director. Mr. Bacon joined the sales staff in Orlando in 1927, where he remained until 1931, when he was transferred to Puerto Rico, where he handled sales activities until 1935. He returned to Orlando as sales office manager, and in 1947 was appointed sales director.

Heads Masonry Association

EVERETT E. KNOTT, general manager of the Texcrete Co. of Dallas, Texas, has been named president of the Texas Concrete Masonry Association. He replaces William F. Smith of Black-Brollier Co., Houston, who has been appointed chairman of the board to succeed Vernon Cole, Texas Concrete Works, Inc., Waco. John Barton, Texas Concrete Block Co., Lubbock, succeeds Mr. Knott as secretary-treasurer.

Everett E. Knott

Officers Re-elected

RUSSELL RAREY has been re-elected president of Marble Cliff Quarries Co., Columbus, Ohio, and Harold J. Kaufman has been re-elected chairman of the board. Other officers renamed are: Edward J. Kaufman, vice-president; Urban C. Kaufman, secretary-treasurer; John S. Kaufman, assistant secretary; and Francis L. Jahn, assistant treasurer. In addition to the officers, the board of directors includes Stephen Stepanian and Richard C. Ninde.

91 Years Young!

J. E. KENNEDY, president of Kennedy-Van Saun Mfg. and Engr. Corp., New York, N.Y., was recently presented a silver cigar box at a dinner by division heads and executives of the company on the occasion of his 91st birthday. The dinner was attended by over 300 members of the KVS organization and guests.

J. E. Kennedy, president, left, and Fred Reedy, vice-president

Manages Sand Firm

HERBERT H. EWING has been named manager of the H. H. Halliday Sand Co., Cairo, Ill., according to an announcement by Mrs. Virginia Andrews, a partner in the firm with Norman R. Halliday. Mr. Ewing, who has been associated with the firm for the past several years, has purchased an interest in the company, and will have complete charge of all river equipment, production and sales.

Special Consultant

WALLACE C. RIDDELL has been appointed special consultant to management, Kaiser Gypsum Co., Oakland, Calif. He was formerly director

of research and development at the Redwood City laboratory and will be succeeded in this position by Manvel C. Dailey. Mr. Riddell, who has been active in the gypsum industry for 40 years, was founder of the Standard Gypsum Co., predecessor of Kaiser Gypsum Co. Mr. Dailey, who has been with Kaiser for the past year, was formerly associated with United States Gypsum Co.

District Managers

J. B. EMMONS has been named to succeed W. T. Tambke as manager of the Pacific industrial district of U. S. Gypsum Co., Chicago, Ill., with headquarters in Los Angeles, Calif. J. B. Van Gelder, formerly assistant sales manager of the plastering materials division, has been appointed district manager of the Oakland district, to replace R. T. Morris, who has been transferred to the general Pacific division. David W. Gaston has been named manager of the plastering materials and building steel products division of the merchandising unit, western region.

Officers Re-elected

GORDON TONGUE was re-elected president of Northwestern Portland Cement Co., Seattle, Wash., and James D. Burns of Condon, Ore., was re-elected chairman of the board. Other officers are C. T. W. Hollister, chairman of the executive committee; Dr. James A. Reuter, vice-president; Frank Kiernan, Jr., vice-president; D. G. Metcalf, secretary-treasurer, and H. Johnson, assistant secretary-treasurer.

Named Controller

DEL A. MAUER has been appointed controller of the Brighton Sand and Gravel Co., Sacramento, Calif. He is also executive vice-president of the Allan Construction Co., and vice-president of the Rancho Cordova Corp., both subsidiaries of the Brighton Sand and Gravel Co.

OBITUARIES

ALBERT A. HOFFMAN, vice-president and a member of the board of directors of Calaveras Cement Co., San Francisco, Calif., died May 4 after a long illness. He was 74 years old. Born in Parsons, Kan., Mr. Hoffman studied mining engineering at the University of Kansas and then became associated with copper mining enterprises in Chile. He became California manager of the American Potash and Chemical Corp. and president of the Trona Railway Co. in 1936, and six years later was appointed general manager of the Nicaro Nickel Co. of New York and Cuba. In 1943 he was made manager of the Las Vegas, Nev., plant of Manganese Ore Co., leaving that position to join Calaveras Cement Co. in 1944 as consulting engineer. An internationally known mining engineer, Mr. Hoffman was a member of the American Institute of Mining and Metallurgical Engineers, American Society of Mechanical Engineers and the American Ordnance Association.

KENNETH E. GRAHAM, former vice-president in charge of sales of the Heltonville Limestone Co., Bedford, Ind., passed away May 3 at his home in Brook Noll, Ind. He was 60 years old and had been ill for the past three years. Mr. Graham had been active in the stone industry for most of his life and served as Philadelphia sales representative of the Ingalls Stone Co., for many years.

FRED C. WOLF, vice-president of the Quality Limestone Products Co., Sussex, Wis., died April 5 after a short illness. He was 78 years old and was one of the oldest quarry men in Wisconsin. Born in a small village near Berlin, Germany, Mr. Wolf came to the United States at an early age. His father was employed at the old Hadfield quarry, where Mr. Wolf attended school and worked as a young man. The quarry, which was purchased by the John O'Laughlin Co. in 1905, is now the Waukesha Lime and Stone Co. Mr. Wolf served 43 years as quarry superintendent and vice-president of the company. In 1948, he and his two sons, Clarence and Lloyd, organized the Quality Limestone Products Co., of which he was vice-president until his retirement from active work on account of illness.

MICHAEL KOLTCZ, founder and president of the Koltcz Concrete Block Co., Bedford, Ohio, died May 20. A native of Poland, Mr. Koltcz came to the United States in 1920 and established his company in 1931 with his sons, Stanley and Anthony.

GALLIA B. PETERS, former superintendent of the Portsmouth Sand and Gravel Co., Ironton, Ohio, died May 23 at his home in Fort Gay, W. Va. He was 84 years old.

VAUGHN D. SCHMALZ, superintendent of the Ingalls Stone Co., Bedford, Ind., died as a result of injuries received in an accident at the Romona quarry in Owens County. He was 55 years old.

DONALD C. LEO, secretary and general attorney, Universal Atlas Cement Co., New York, N. Y., died suddenly at his home in Huntington Station, Long Island. He was 51 years of age. A native of New York City, Mr. Leo graduated from Fordham Law School in 1926. He joined the company as an attorney in 1943. He was appointed assistant secretary in 1947, became secretary in 1951 and general attorney in 1953.

ROBERT L. LANPHEAR, general superintentent of the Mid-State Concrete Products Co., South Beloit, Wis., died recently at the age of 39.

ALBERT L. VALENTINE, sales manager of the Klinker Sand and Gravel Co., Seattle, Wash., died suddenly on May 28. He was 58 years old. Born in Seattle, Wash., Mr. Valentine was graduated from the University of Washington.

DEWEY D. BATTJES, president of the Grand Rapids Gravel Co. and the Consumers Gravel Co., Grand Rapids, Mich., died May 14 after an illness of two years. He was 58 years old. Mr. Battjes was one of the original founders of the company, which was established in 1920, and had been president for the last four years.

MISS OLIVE M. LEECH of the Triangle Construction Co., Fairfield, Iowa, was killed in an accident in Fort Madison, Iowa, on April 10 when her car collided with another at an intersection. Miss Leech was an active member of the Iowa Agricultural Limestone Association.

HAROLD M. SCOTT, retired president of the Keystone Portland Cement Co., New York, N. Y., died April 7 at Scarsdale, N. Y., after a long illness. He was 66 years of age.

Left to right: Carl Willis, of the Portland Cement Association; John Mallon, vice-president, Louisville Cement Co.; and S. Carl Smithwick, Smithwick Concrete Products Co., at the Expanded Shale Institute Meeting

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industry news

Cover Picture

ON THE COVER of this issue is an illustration of the Prospect plant of Maule Industries, Inc., northwest of Ft. Lauderdale, Fla. This plant processes the unique oolite limestone or coral rock as it is known locally, and employs some unusual methods and equipment for blasting, excavation, crushing, screening and recovery of stone sand. The complete story appears in this issue. Maule Industries, Inc., is one of the nation's largest rock products producers, and is a major manufacturer of concrete block and precast, prestressed concrete units in addition to ready-mixed concrete. It operates four crushed stone plants, three block plants, and eight ready-mixed concrete batching plants.

Anti-Stream Pollution

A PROPOSAL to reduce stream pollution by providing tax incentives for industrial firms to install anti-pollution equipment was recently sent to Congress by the U. S. Chamber of Commerce. The proposal recommends amendment of the tax reform bill (H.R. 8300) to permit firms to write off the cost of such equipment over a 5-year period for tax purposes. The present law requires that tax deductions for depreciation be made over the normal lifetime of the equipment.

An increasing number of states and localities are requiring industrial firms to install special equipment to prevent stream pollution by industrial wastes. Although the equipment is non-productive, and thus in a sense is an enforced penalty, it is not recognized as such for income tax purposes, as pointed out by the Chamber of Commerce.

Obtains Gravel Lease

AMERICAN AGGREGATES CORP., Greenville, Ohio, recently completed negotiations with the City of Dayton, which gives the company exclusive sand and gravel rights on 300 acres of city-owned property. The lease, which has a 15-year renewal clause, provides that a royalty of five cents per ton be paid on all materials removed from the property. In addition, American Aggregates has agreed to give the city eventual title to a 115-acre farm adjoining present city-owned property, and also will give the city, cost-free, all the excavating needed for a water reservoir, with an area in excess of 300 acres. The farm is currently owned by the company. Also, in accordance with past company policy which has done so much towards promoting good community relations, American Aggregates will rehabilitate the property following excavating operations, and will also do other work which will keep city reservoir preparations, to a minimum.

American Aggregates revealed that its present operation enables it to deliver about 750,000 tons of material annually in the Dayton area. Acquisition of the city property is expected to increase annual volume to about 1,000,000 tons. Initial capital investment for the expanded operation was listed at $250,000.

Donates Lime for Lawns

THE KERFORD QUARRY CO., Atchison, Kan., is supplying agstone, free of charge, to Atchison residents, for the purpose of beautifying the city in preparation for the city's centennial celebration. The lime is being distributed from a central location where it may be picked up by any interested Atchison resident. Recommendations as to the amount and proper methods of applying agstone are also given. The beautifying project for the city is being sponsored by the city's Chamber of Commerce, with the aid of the Kerford company and other civic-minded business and industry.

Two-Way Payload

RIVERSIDE CEMENT CO., San Francisco, Calif., recently placed into service a transporting vehicle designed especially for the purpose of permitting a payload for both the outgoing and returning trip. As shown in the accompanying illustration, the unit is being used to haul a payload of 23 tons of bulk cement from the company's Oro Grande, Calif., plant to the Los Angeles area. An equivalent load of fuel oil for the firm's manufacturing operation is picked up for the return trip. The unit was designed and engineered by Utility Trailer Manufacturing Co., Los Angeles, in cooperation with Thomas F. Tugwell, director of transportation for the cement company.

Adds Industrial Sand Plant

FOUNTAIN SAND & GRAVEL CO., Pueblo, Colo., has expanded its plant operations by the addition of an industrial sand plant, reportedly the first of its kind in the area. The new $60,000 sand-drying plant has a 200-ton daily capacity. Engine sand, filter sand, blast sand, and grinding and abrasive sands will be produced. The company has acquired a contract with the Denver & Rio Grande Railroad to supply engine sand over the railroad's entire system. Several carloads of sand will be shipped each week under this contract to all division and terminal points. According to Joseph F. Bullen, president, the company is also investigating the use of sand as a safety measure for transport trucks which must travel over wet and slippery pavements.

Medusa Expansion

MEDUSA PORTLAND CEMENT CO., Cleveland, Ohio, has started its multi-million-dollar plant improvement and expansion program, as recently announced by Ellery Sedgwick, Jr., president. According to the announcement, much of the expenditures will be used to enlarge the company's gray cement plant and limestone quarry at York, Penn. This project reportedly is designed to substantially increase efficiency, expand production and reduce the cost of cement in an area where there has been a severe cement shortage in recent years. The plant currently produces approximately 500,000 to 600,000 bbl. of gray cement annually. The expansion program, which is expected to be completed by the latter part of 1955, will increase capacity by about 100 percent. Production at the quarry reportedly will be doubled.

Vehicle shown above is designed to haul payload of 23 tons of cement on outgoing trip, and an equivalent load of fuel oil on return trip

Laboratory Celebrates 25th Anniversary

THE CEMENT REFERENCE LABORATORY recently celebrated its 25th anniversary. The laboratory began operations in mid-1929, following a $12,500 appropriation by the 70th Congress for establishment of the laboratory at the National Bureau of Standards. The Portland Cement Association had previously appropriated a similar amount.

In March, 1929, a meeting was held in Washington to formulate plans for carrying on the work. The following was outlined as the work to be done and methods to be followed by the laboratory: (1) To establish a laboratory with apparatus and personnel capable of making tests of portland cement in strict conformance with the specifications; (2) to instruct on established methods of making tests, maintaining testing equipment, and to calibrate testing equipment when submitted; (3) to report, when requested to by the directing head of a cement testing laboratory, on the adequacy and accuracy of its apparatus to make cement tests to conform with standard specifications and to issue suitable certificates covering apparatus only to those laboratories entitled to them; and (4) to make on request, tests of cement for the purpose of enabling a laboratory to check its results with those of the reference laboratory.

In 1953, the laboratory completed its tenth tour of inspection, which required three years to complete and covered 261 state highway, university, municipal, and commercial laboratories. Among the varied apparatus checked were balances; Vicat and Gilmore needles; air content apparatus; glass graduates; flow tables; and compression, tension and flexure testing equipment.

The reference laboratory also recently completed a test series on standard samples of cement, in which 206 laboratories participated. Ninety-eight percent of the laboratories in this series reported within 1 percent accuracy in determining normal consistency properties of the standard cement—a prime example of the effectiveness of the laboratory's work.

New Crushing Plant

THE VERMONT MARBLE CO., recently opened a new plant for the production of crushed magnesium limestone and bituminous concrete "hot mix" at the Loveland quarry in Florence, Vt. New machinery and equipment installations reportedly cost about $150,000. Plant capacity is 50,000 to 75,000 tons per season.

The marble company has been operating a by-products quarry at the Loveland location for several years, supplying several grades of crushed high-calcium limestone for such purposes as fluxing stone for iron and steel foundries, filter filler and neutralizer for chemical and plastic industries; fillers for various manufactured products; and for roofing granules.

Increased demand by Vermont farmers for a high-magnesium limestone for agricultural purposes reportedly led to exploration by the company and to the resulting discovery of a large deposit of magnesium stone in close proximity to the company's other quarrying operations. Tests have shown that, in addition to agricultural purposes, the stone is suitable for railroad and road ballast, fluxing stone, and as a component of bituminous road-surfacing material.

Silicate Research Fellowships

ASA S. KNOWLES, president University of Toledo, has announced the awarding of the first two fellowships in silicate research at the university. Five such fellowships are now available, two sponsored by the Institute of Silicates at the university, two by Owens-Illinois Glass Co., and one by Libbey-Owens-Ford Glass Co. The first two fellowships were awarded to Glenn L. Calcamuggio, Toledo, Ohio, and Heyman C. Duecher, Marion, Ind., who will each engage in research and study leading to the master of science degree. They will be paid $2500 a year while pursuing their work.

Vermiculite-Perlite Plant

WESTERN MINING CORP. has started operation of its new vermiculite-perlite processing plant at Nampa, Idaho. The plant, which extends 200 ft. along a private railroad spur, processes vermiculite from corporation holdings near Bozeman, Mont., and perlite from Owyhee County, Idaho. It reportedly is the only vermiculite-processing plant in the area. President of the company is Carl LoConto, Boise, Idaho.

Cement Safety Records

SEVERAL NEW CEMENT INDUSTRY safety records were set in 1953, as recently reported by Ivan F. LeGore, safety director, Portland Cement Association, Chicago, Ill. Member companies of the P.C.A. reported the largest number of accident-free plants in 1953 than during any other year of the 38 years that cement industry safety records have been kept. Both the accident-frequency and injury-severity rates were the lowest in the history of cement safety work.

Although cement manufacture involves some of the world's largest moving machinery, cement has for years been named by the National Safety Council as one of the safest of the heavy industries. Among the 40 basic industries studied by the N.S.C., the cement industry consistently ranks among the six safest.

The Portland Cement Association awards a safety trophy to member company plants operating a full calendar year without a lost-time accident. Of the 55 accident-free plants in 1953 (seven more than in 1952), 51 qualified for re-award of trophies previously won; one won a trophy for the first time; and three rated honorable mention. A single disability in each of 26 plants prevented these plants from receiving trophies for 1953. Ten portland cement plants have had accident-free records for the past three consecutive years.

The new all-time low frequency rate of 3.81 accidents per million man-hours worked in 1953 was 18 percent below the 1952 rate and 10 percent lower than the previous record rate of 4.22 set in 1951. The new record injury-severity rate of 1.67 days lost per thousand man-hours worked was 27 percent below the 1952 rate and 7 percent lower than the previous low rate set in 1932.

Mining and quarrying operations also made important gains in safety. Of 131 mining and quarrying operations reporting, 100 had accident-free records for 1953, compared with 95 in 1952. Seventy-eight had perfect records for both years. Injury frequency and severity rates were reduced 40 percent among the quarrymen.

Purchases Gravel Property

OHIO GRAVEL CO., Cincinnati, Ohio, has announced the purchase of an additional 100-acre gravel tract, adjoining its present gravel operations at Camp Dennison, Ohio, reportedly increasing the acreage around its main plant by 50 percent. Cost of the purchase was stated to be $124,000.

The Camp Dennison plant, which was established at a cost of $600,000, is one of six such units operated by the company in the Greater Cincinnati area. Crushed stone for building and paving uses, railroad ballast, sand and gravel are produced. Fred W. Cornuelle is president of the Ohio Gravel company.

Canadian Cement Plant

THE NEW 1,500,000-BBL. CEMENT PLANT, presently being built near Montreal by a Swiss concern known as the Holderbank Group, will increase Canadian cement production by 7 percent, according to Dr. Bernard Ulrich, general manager of St. Lawrence Cement Co., Ltd., which will operate the plant. Dr. Ulrich states that the merging of European ideas and Canadian methods is resulting in a plant which differs in many aspects from current standard Canadian practice.

The plant will be equipped with an electrostatic precipitator, which reportedly will recover at least 99 percent of the dust production which is expected to amount to about 50,000 tons annually. Plant engineers have adopted a method, already in use in Holland, for re-introducing the dust

into the kiln with the pulverized coal from the discharge end, where it is blown in with the coal at the firing end.

Material handling is being cut to a minimum by locating the cement silos on top of the packing house so that cement can be mixed and conveyed under gravity. The packing station will load cement into railroad cars on one side and trucks on the other.

Each silo, holding 1500 tons when full, is supported by three columns, subjecting silo walls to considerable torsion. This system of using a high circular wall to serve as a beam between columns is believed to be of interest not only for cement plants, but for any plants storing powdered or granular products as well.

Coral Concrete

IN A RECENT AD in *U. S. News & World Report*, Holmes & Narver, Inc., a firm of engineers and constructors for the Atomic Energy Commission's Pacific Proving Grounds at Eniwetok, describes unique techniques employed in developing a coral concrete, reportedly of comparable strength to that used for construction in the United States. The atolls or coral islands are completely without fresh water and rock aggregates normally used in concrete production, and distilling sea water and transporting aggregates over thousands of miles of ocean were regarded as too costly even for a project of this importance. Following considerable research, Holmes & Narver technicians utimately produced a coral concrete said to provide strength equivalent to any comparable building requirements in industry. This was accomplished by substituting coral for rock, and sea water for fresh water.

Expands Cement Storage

MISSOURI PORTLAND CEMENT CO., St. Louis, Mo., is expanding its cement-storage facilities by the addition of new silos, consisting of ten bins, 24 ft. in dia. and 142 ft. high, with an estimated capacity of 160,000 bbl., and featuring conical steel self-cleaning bottoms. There will be two 8-in. Fuller-Kinyon traveling pumps for unloading the silos into existing bulk loading and packing facilities. The silos will be filled by extension of the present pump lines. Dust collection systems will also be installed on top of the silos. The construction contract, which includes the erection of all machinery and electrical wiring, was awarded to MacDonald Engineering Co., Chicago, Ill.

A.C.I. Regional Meeting

A REGIONAL MEETING of the American Concrete Institute will be held next October 28 and 29 at the Statler Hotel, Los Angeles, Calif. General committee chairman in charge of the meeting is Sam Hobbs of the Portland Cement Association, assisted by Lewis K. Osborn, secretary; Byron P. Weintz, treasurer; and Dr. Vernon P. Jensen and Ralph W. Spencer, present and past members, respectively, of the institute's board of directors. J. L. Peterson is program chairman and John K. Minasian is publicity chairman.

Portland Cement Production

THE PORTLAND CEMENT INDUSTRY produced 20,084,000 bbl. of finished cement in March, 1954, as reported by the Bureau of Mines. This was a decrease of 1 percent compared with the output in March, 1953. Mill shipments totaled 18,740,000 bbl., a decrease of 10 percent from the March, 1953, figure, while stocks were 21 percent above the total for the same month in 1953. Clinker production during March, 1954, amounted to 22,003,000 bbl., an increase of 4 percent compared with the corresponding month of the previous year. The output of finished cement during March, 1954, came from 156 plants located in 37 states and in Puerto Rico. During the same month of 1953, 20,215,000 bbl. were produced in 155 plants.

Cement Plant Expansion

ARIZONA PORTLAND CEMENT CO., Los Angeles, Calif., recently announced plans to expand its plant at Rillito, Ariz., 18 miles northwest of Tucson. The addition of a third and larger kiln is expected to boost production from the present 4000 bbl. of cement per day, to 7000 bbl. daily. The plant began operation in 1949 with a single 335-ft. kiln, with a second similar kiln being installed in 1951. The plant is located near a large limestone and shale deposit, estimated to contain sufficient raw materials to maintain plant operation from 50 to 100 years.

Opens Distributing Plant

PERMANENTE CEMENT CO., Oakland, Calif., has opened a 7000-bbl. capacity cement-distributing plant at Pasco, Wash. The plant, which is located at the confluence of the Snake and Columbia Rivers, will service the company's eastern Washington and Oregon sales territories.

New Gravel Firm

THOMAS & GEARHART, INC., a sand and gravel firm, was recently established at Ashland, Neb., by Marvin Thomas and Lyle Gearhart.

Acquires Engineering Firm

W. R. BENDY—CEMENT ENGINEERS, St. Louis, Mo., recently announced the acquisition of R. C. Ried-Engineers, New York, N. Y., which will be operated as a New York branch office.

Vermiculite Plant

SISCOE VERMICULITE MINES, LTD., Cornwall, Ontario, is currently building a vermiculite processing plant in the Rexdale industrial area at Toronto. Vermiculite ore to be processed at the new plant will be obtained from South Africa.

Opens Stone Quarry

JACK JOHNSON, Plattsburg, Mo., has opened a stone quarry near Cameron, Mo., on Highway 69.

Coming Conventions

September 20-24, 1954—
American Mining Congress, Annual Metal and Nonmetallic Mining Convention and Exposition, Civic Auditorium, San Francisco, Calif.

October 18-22, 1954—
National Safety Council, 42nd Congress and Exposition, Conrad Hilton, Congress, Morrison and La Salle Hotels, and Palmer House, Chicago, Ill.

October 20-22, 1954—
National Industrial Sand Association, Fall Meeting, Hotel Plaza, New York, N.Y.

October 28-29, 1954—
American Concrete Institute, Regional Meeting, Statler Hotel, Los Angeles, Calif.

Oct. 28-Nov. 2, 1954—
North Caroline Concrete Masonry Association, Annual Meeting, On Board Swedish Liner "Stockholm" to Bermuda.

January 9-13, 1955—
National Ready Mixed Concrete Association, Silver Anniversary Convention, Miami, Fla.

January 9-13, 1955—
National Sand & Gravel Association, 39th Annual Convention, Miami, Fla.

HINTS and HELPS

PROFIT-MAKING IDEAS DEVELOPED BY OPERATING MEN

Crusher "Wear-Takers"

WHERE TRUCKS DUMP DIRECT to the throat of a crusher, impact of the larger stone falling into the unit can

Old jaw crusher plates take impact from large stone dumped by trucks into primary crusher feed hopper

cause excessive wear on exposed parts. In the illustration, three old worn jaw crusher plates have been suspended into the feed hopper to absorb the impact of falling stone.

Handling Fines

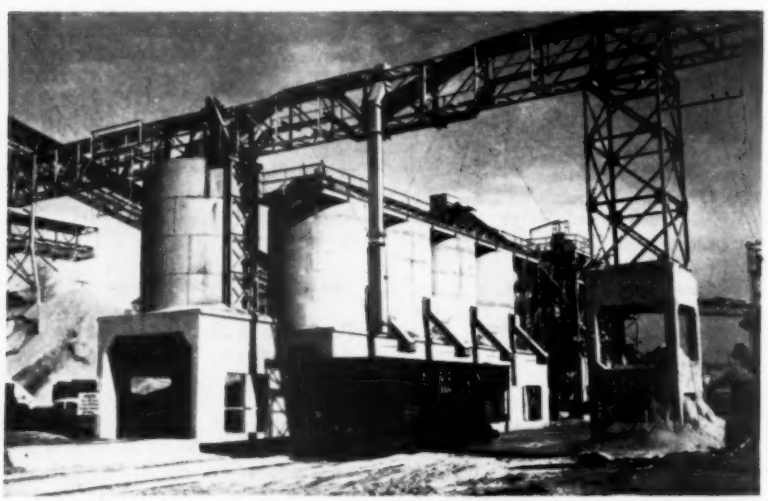
ONE LARGE CRUSHED GRANITE OPERATION features a three-way system for discharging to bins, loading to cars, or stockpiling its fine-sized material. The illustration shows the elevated belt conveyor carrying fines to a silo. The next outlet is to the open gondola, and the third is to ground storage at right. The first silo can load trucks or open cars. Under the silos shown is a 90-ft. long, Fairbanks Morse track scale, so that cars or trucks can be weighed as loaded.

Bin Set-Up

AT A NEW CRUSHED limestone plant in the Miami, Fla. area, two vibrating screens are installed above four Butler bins, as shown in the illustration. The screens operate in closed

Oversize from top screen is chuted back to small rectangular bin serving return belt to secondary reduction unit

circuit with a Pennsylvania hammermill, and the oversize from the top screen is chuted back to a fifth, but smaller, rectangular bin. The smaller bin serves the return belt to the secondary reduction unit. It is a neat and serviceable installation.



Elevated belt conveyor carries fines to silo; second outlet is to open gondola; third is to ground storage at right

Cable Transportation Unit

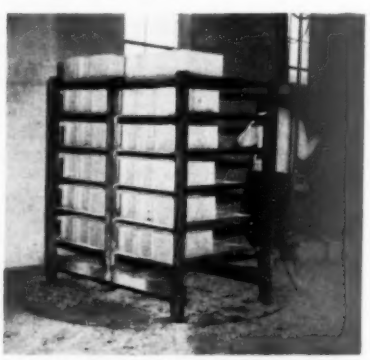
THE USE OF WIRE ROPE, insulated power cable and similar products that are wound on reels is conventional in

Reel carrier, pulled by jeep, solves cable-handling problem

the rock products industries. Often the handling of this type of material is cumbersome. One southern crushed stone producer uses a one-axle, pneumatic-tired, reel carrier which is hauled about the plant with a jeep.

Cubing Turntable

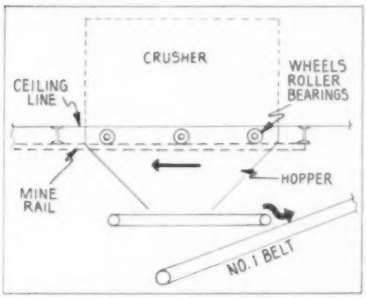
AN EASTERN CONCRETE MASONRY PRODUCER, during a recent expansion program, installed four power-driven cubing tables. Each table is a circular steel plate mounted at the floor line elevation and large enough to receive a rack of cured block. There are two tables for each cuber, or a total of four tables. Each table is individually driven by a 1-hp., geared-in-head motor, and it requires 30 to 35 seconds for the rack to be turned 180 deg., with the cuber operator controlling the motor.



Power-driven cubing turntable consists of circular steel plate mounted at floor level, and large enough to receive rack of cured block

Crusher Installation

A PRIMARY CRUSHER installation in the South uses a single McLanahan & Stone slugger roll. The crushed ma-



Line sketch shows how hopper under crusher is suspended on rollers and overhead trackage, so that it can be pushed back in event of repairs. Arrow shows direction of movement of hopper

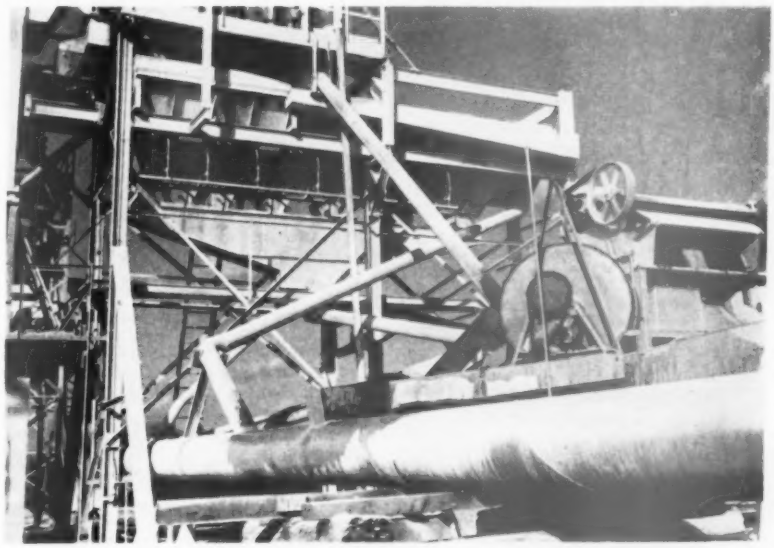
terial falls to a short, horizontal-running belt conveyor that feeds belt No. 1, going to the scalper screen. The hopper under the crusher is suspended on suitable rollers and overhead trackage so that it can be pushed back out of the way in the event that repairs

Crushed material falls to short, horizontal-running belt which feeds to belt going to scalper screen

are needed to the hopper or other items of equipment nearby. The line sketch shows how this can be done.

Processing Masons Sand

THERE IS perhaps nothing more provoking to a plasterer than to have a piece of stone or foreign material in the plaster he is applying to a wall, especialy if it is the finish coat. Inclusions of such materials in masons sand can lose business. One producer in the South produces masons sand with an Eagle dewatering sand screw but the material going to the spiral passes through a "squirrel cage" mounted on top of the spiral. It has



Squirrel cage over sand spiral removes coarse sand

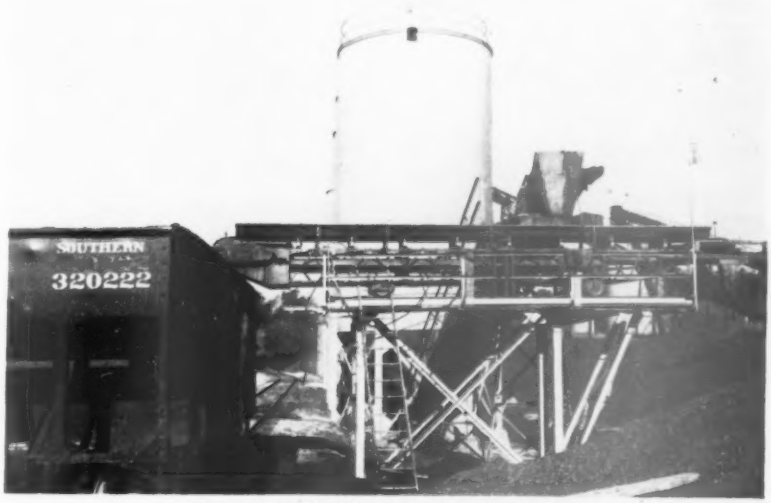
$\frac{3}{32}$-in. wire screen over the face of the drum and is so designed that the plus fraction is ejected from the cage by by suitable lifters inside it. These coarse fragments go into the concrete sand. The squirrel cage is about 4 ft. in diameter and 2½ ft. across the face. It has a water spray on the outside and is independently driven. Squirrel cage over dewatering sand screw removes any coarse sand.

Shuttle Loading Belt

A NEAT AND SERVICEABLE SHUTTLE LOADING BELT used by the Georgia Lightweight Aggregate Co., Rockmart, Ga., is shown in the illustration. It is mounted on suitable trackage so that it can be moved out of the way when cars are being switched. The one shown is self-contained and is reversible so that it can load either cars or trucks.

Driver's Manual

THE NATIONAL READY MIXED CONCRETE ASSOCIATION has announced publication of its 1954 driver's manual, "Your Job," prepared for association members at a nominal fee, for distribution among ready-mixed concrete truck drivers. The manual, first issued by the association in 1950, is colorfully and humorously illustrated and designed to aid the driver in doing the best job possible, and to promote good employer-driver and driver-customer relationships. Topics covered include responsibilities and general duties of driver; importance of pleasing customers; significance of ready-mixed concrete quality; truck care and maintenance; and safety. The manual is attractively bound with detachable pages and covers both central-mixing and transit-mixing concrete operations.

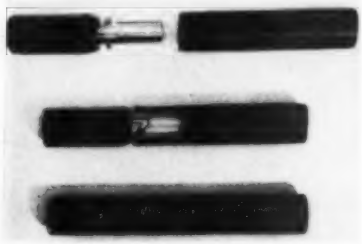


Reversible shuttle belt loads either cars or trucks

NEW Machinery

Welding Cable Connector

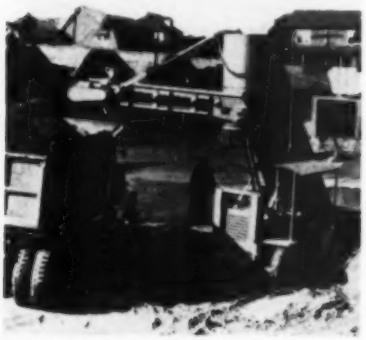
DALWELD CO., 1 Bertel Ave., Mount Vernon, N.Y., has announced a detachable welding cable connector, designed to eliminate accidental disconnection. The connector has an expander-type end which connects securely with a quarter-turn, providing a wipe-joint fit for complete electrical contact and assuring maximum conductivity. The connectors, made for both solder and mechanical connects, in 400- and 600-amp. capacities, have a heavy-duty insulating fibre tube casing. Current-carrying parts are made from bar brass.



Connector has an expander-type end, assuring maximum conductivity

Bucket Loader

N. P. NELSON IRON WORKS, INC., Clifton, N.J., has introduced a heavy-duty bucket loader with a hydraulic operated swivel discharge conveyor, designed specifically to handle high-speed, high-capacity truck loading. Available in two models, the P-11B mounted on rubber tires and the Q-11B mounted on crawlers, it is said to handle a loading capacity of up to 4 cu. yd. per min. The swivel discharge conveyor turns a full 180 deg., and discharges at heights of over 14 ft. with an 11-ft. reach. The conveyor turns, lowers or raises independently of the bucket boom. The complete hydraulic system, anti-friction bearings, avalanche plates, spring mounted bumpers and an extra-heavy conveyor belt are included as standard equipment. The boom tilts down for highway transport.



Heavy-duty loader with swivel discharge conveyor handles high-speed, high capacity truck loading jobs

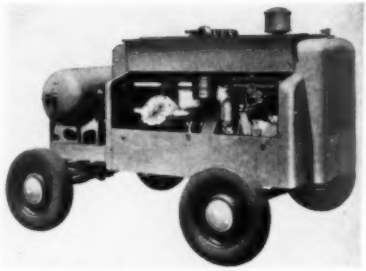
Industrial Engine

FORD MOTOR CO., Ford Div., Dearborn, Mich., recently announced a 172-cu. in., four-cylinder industrial engine which develops 61 b. hp. at 2800 r.p.m. A deep-skirt crankcase is incorporated for greater rigidity, and the precision molded alloy iron crankshaft is fully balanced in motion before installation in the engine. The shaft has mirror polished bearing surfaces to reduce friction. Free-turn intake and exhaust valves permit even wear, help maintain high compression, and reduce the possibility of sticking valves. The ignition and distributor are sealed against moisture and dust, and the engine features a full-flow oil filter with full-pressure lubrication. Full-length water jackets surround each cylinder to maintain uniform temperature and minimize bore distortion and wear. A fast-acting fully lubricated speed governor is mounted on the crankshaft.

Four-cylinder, 172-cu. in. engine develops 61 b.hp. at 2800 r.p.m.

Portable Compressor

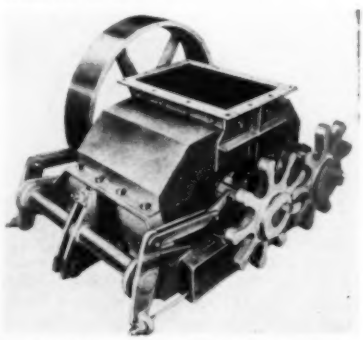
DAVEY COMPRESSOR CO., Kent, Ohio, has announced the "Super Chief 160," a 160 c.f.m. portable compressor. Available in two- and four-wheel trailer and in skid mountings, the unit is available in gasoline and diesel-powered models. Standard features include automatic compressor-engine controls; individually-finned cylinder, separately replaceable; full force feed lubrication; cast aluminum crankcases; multi-port valves; electric starting; automotive type steering; full spring suspension; and double, built-in full length tool boxes. The four-wheel trailer, diesel-powered is 115 x 75 x 70 in. and has a net weight of 4300 lb.



Four-wheel, diesel-powered compressor

Double-Roll Crusher

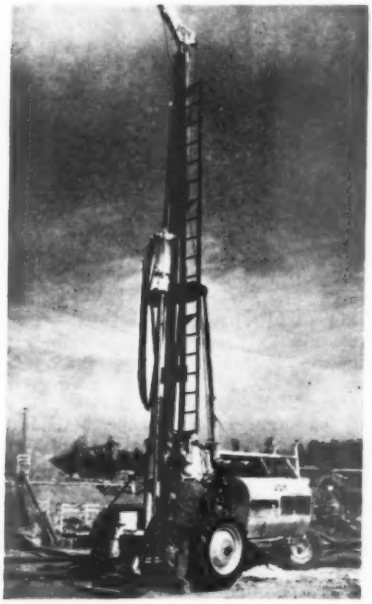
MCLANAHAN AND STONE CORP., Hollidaysburg, Penn., has announced the Black Diamond double-roll crusher for the reduction of coal, lime, cinders and similar materials. A movable roll, backed by a linkage system, incorporates a curved, cast iron adjusting block, which serves as a combination tramp iron protection and adjustment device. These block, which are made in various lengths to permit different product size openings, are designed to break upon entry of tramp iron or other non-crushable material. Solid backing of the movable roll is said to insure a fixed, non-fluctuating opening between the crusher rolls, permitting accurate sizing of the crushed product. Special flame cut steel gears with extra long teeth are utilized on all sizes of the crusher to facilitate adjustments in the crusher opening of up to 3½ in. The roll shaft bearings are 45-deg. pedestals, split on the center line. They have two-piece bronze bushings with shims to compensate for wear. Various sizes of the unit are available for processing a range of feed sizes. Roll diameters are 18, 24, 30 and 36 in., with roll lengths from 18 to 60 in.



Crusher features a curved cast iron adjusting block which serves as a combination tramp iron protection and adjustment device

Hammer-Type Drill

JOY MANUFACTURING CO., Henry W. Oliver Bldg., Pittsburgh 22, Penn., has announced the Challenger blasthole drill which has a 5¼-in. hammer-type drill, mounted on a 26-ft. feed to give



Blasthole drill is available in three mountings

20-ft. steel changes. It is said to drill in rock formations, including hard igneous or metamorphic rock, and drill 4½-in. dia. holes to depths of 50 ft. or more. It is available with a choice of three mountings: the TWM-2 is comprised of a three-wheeled chassis, self-propelled by a commercial tractor power unit and equipped with a hydraulic pump, for raising and lowering the mast, and an integral dust collector; the TWM-2A is a three-wheeled chassis unit, self-propelled by two reversible piston-type air motors, and is equipped with a hydraulic system which is also air powered; and the TWM-3, comprised of the drill and feed and necessary brackets for mounting on the drill operator's own crawler-mounted tractor. The drill uses 2-in. round sectional steel with a ¾-in. air hole for blowing action, permitting simultaneous drilling and blowing. The unit features force-feed lubrication, a replaceable cylinder liner, and replaceable bushings at all wearing areas.

Vibrating Conveyor

HEWITT-ROBINS, INC., Stamford, Conn., has developed a vibrating conveyor, mounted on springs, and designed to convey such materials as chemicals, sand and gravel, flue dust, etc., at a speed of 38 f.p.m. Pans with a special coating or of stainless steel are available for handling extremely corrosive and abrasive materials. Standard pans are 4 in. deep and can be supplied in widths of 8, 12, or 18 in. with or without top covers. The single-drive, 1-hp. model is available in lengths ranging from 20 to 100 ft., and transfer sections can be used to couple two or more units in tandem. The pans, mounted on "Preg Wood" leaf springs, are vibrated by the same type heavy duty drive used on larger models, which is reported to provide almost double the handling capacity and transfer length of other models.

Gas Scrubber

JOHNSON-MARCH CORP., Philadelphia, Penn., has developed a liquid precipitating stack gas scrubber for installation as a permanent unit in housings of cinder block or concrete, or in a fabricated steel housing, if a portable unit is desired. All connections are made to existing ducts with no need for complicated piping. Neither cloth bags nor filters are used.

The scrubber is designed for dust removal from the stack of cyclones, rotary dryers, kilns, roasters, mixers, pulverizers, sintering plants, asphalt plants, chemical plants, etc. Dust particles of sub-micron sizes are said to be removed by the scrubber, even at the extremely high dust loadings found in asphalt plants. Designated Type H, the liquid precipitator, multiple-action scrubber is similar in operation to the earlier Type V unit made of welded steel plate. Eight models are available for handling high temperature gases in capacities ranging from 8000 c.f.m. to 60,000 c.f.m. Approximately 2½ g.p.m. of water at 40 to 50 p.s.i. are required per 1000 c.f.m.

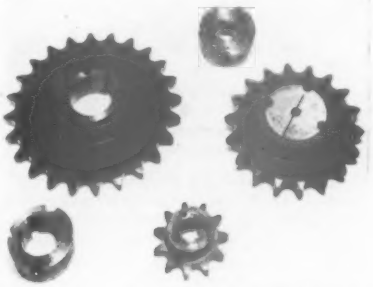
If greater dust removal capacities are required, additional scrubber stages may be added. The precipitator elements can be adapted to meet varying conditions, and spray capacities changed to meet special requirements.

The dust removed from the air is reduced to a watery sludge which can be discharged into a tank or pond for removal of the solids. A recirculating system can be used where water supply is a problem. The proportioning equipment delivers a solution, Compound M, to the precipitator elements which, when diluted with the water, wets the solid particles in the gases and the dust which ordinarily repels water.

The throats and impinger plates in the scruber are made of heavy cast iron. The impinger panels are of carbon steel or special alloys, and the precipitator elements are of heavy gauge angle iron and stainless steel. Companion flanges for both air inlet and outlet connections are provided as standard equipment. The unit is equipped with three hinged inspection doors.

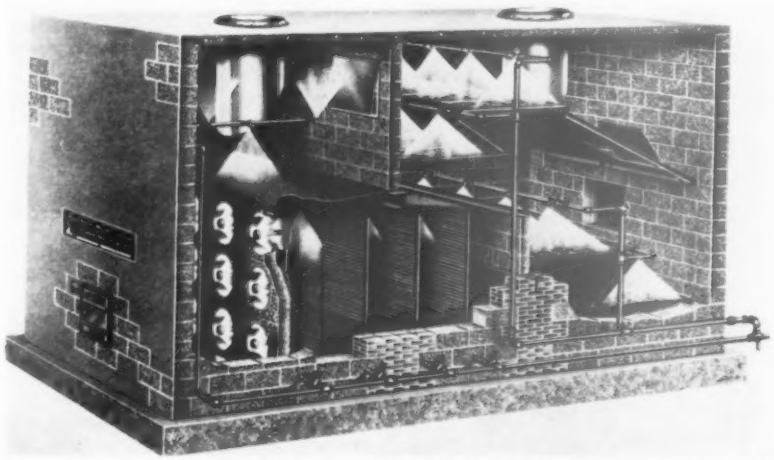
Roller Chain Sprockets

MORSE CHAIN CO., 7601 Central Ave., Detroit 10, Mich., has announced the availability of Taper-Lock roller



Bushings with different sized holes fit a single sprocket to eliminate reboring

chain sprockets, both single and double hub types, in an expanded line of stock sizes for No. 120, 1½-in. pitch; No. 140, 1¾-in. pitch; and No. 160, 2-in. pitch. The No. 120 Type B, single-hub sprockets are stocked in nine sizes from 13 to 26 teeth with a maximum rating of 75 hp., and Type C, double-hub sprockets are available in five sizes from 35 to 80 teeth. No. 140 Type C can be had in ten sizes

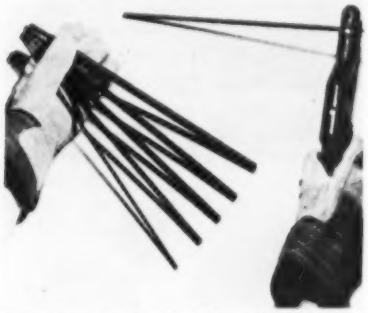


Liquid precipitating dust removal system may be installed in cinder block, concrete or fabricated steel housings, with connections being made to existing ducts

from 12 to 26 teeth with a maximum rating of 95 hp., and Type C driven sprockets in four sizes from 35 to 70 teeth. No. 160 Type B sprockets are made in eleven stock sizes from 11 to 26 teeth with a maximum rating of 125 hp., and Type C in three sizes from 35 to 60 teeth.

Hardsurfacing Electrodes

WALL COLMONOY CORP., 19345 John R St., Detroit 3, Mich., has introduced a series of general service iron-base d-c hardsurfacing electrodes having a metallic coating to provide improved

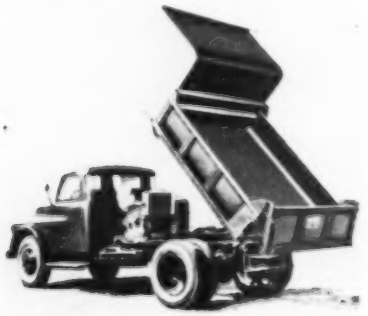


General service hardsurfacing electrodes are available in two types

weldability and arc stability. The electrodes, which are made up of a chromium, boron and iron composition, are available in two types: Colmonoy No. 1 for applications requiring extreme impact with high abrasion resistance, and Colmonoy Special No. 1 for applications requiring extreme abrasion and impact resistance. The electrodes are said to provide deposits that do not require cleaning or slag removal by chipping or brushing prior to welding on successive deposits, and can be used in vertical surface applications. Both type electrodes are available in 1/8-, 5/32- and 1/4-in. dia. sizes.

Compressor and Dump Body

DAVEY COMPRESSOR CO., Kent, Ohio, and The Galion Allsteel Body Co., Galion, Ohio, have jointly announced an air compressor-dump body truck unit, consisting of a Davey Model 105 "Auto-Air" unit and a Galion Model 12 contractors' body. The compressor delivers 105 c.f.m., and is of two-stage, air-cooled design. It is driven direct from the truck engine by a heavy duty power take-off, and occupies less than one-fourth of the truck body space. The dump body is of high tensile steel, with box-type side braces, full size compressor protector, fabricated steel hardware and extra heavy rear corners. Raising and lowering action is handled by a Model 700 Galion hoist with patented fulcrumatic action. The body is 90 x 78 in. with 15-in. sides and 21-in. ends. Both the compressor and body are suitable for mounting on a variety of standard motor trucks.



Air compressor-dump body truck unit

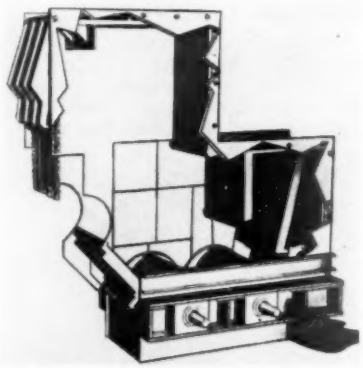
Lightweight Goggles

UNITED STATES SAFETY SERVICE CO., 1215 McGee, Kansas City 6, Mo., has introduced "Saf-I" cup-type, chippers' and welders' goggles featuring scratch-resistant plastic lenses known as Optilite A. Two other lens materials, Optilite B plastic and hardened glass are also available. The lightweight goggles are said to provide good ventilation and comfort without sacrificing strength and durability. The rubber headband has a rippled surface and an adjustable slide fastener for positive fit and to prevent slipping.

Welders' and chippers' goggles with lenses of hardened glass or scratch-resistant plastic

Impact Breaker

KENNEDY-VAN SAUN MANUFACTURING & ENGINEERING CORP., Contractor & Construction Equipment Div., Danville, Penn., has introduced the Model 3648 "Cuber Senior," dual rotor, up-running impact breaker featuring a multi-stage, triple action reduction principle for both primary and secondary breaking of non-abrasive stone. It is designed for stationary or portable use in open or closed circuit operation. A low positioned feed device provides a minimum feed height for maximum rock penetration and is said to eliminate "foul balls." Two rotors with integral hammers provide the rock breaking action, making it unnecessary to mount supplemental impact members close to the periphery of the hammers. The reduction chamber is reported to be large enough to allow free breaking of rock without restricting the flow or jamming the breaking area.



Dual rotor, up-running impact breaker features multi-stage, triple action reduction principle for primary and secondary breaking of non-abrasive stone

The unit handles rock freely passing the 36- x 48-in. feed opening, and has maximum capacities in average limestone of up to 350 t.p.h. of minus 3 in., up to 275 t.p.h. minus 2 in., and up to 150 t.p.h. minus 1 in. with 150 to 250 hp. required.

Excavator Shovel

DEMPSTER BROTHERS, INC., Dupount St., Knoxville 17, Tenn., has brought out the Dempster-Diggster GRD-101, an excavator shovel and front end loader which is fully operated by hydraulic power with independent crowd and hoist action. Its features include truck-speed mobility to and from jobs; maximum dumping and digging height; minimum turning radius, due largely to its tricycle steering; automatic bucket trip; and hydraulic steering. A torque converter acts as a fluid cushion between the power source and the transmission, and no wheel traction is said to be required for excavation power.

Shovel and front end loader features hydraulic steering, and independent crowd and hoist action

Shovel-Crane

LINK-BELT SPEEDER CORP., 1201 Sixth St., S.W., Cedar Rapids, Iowa, introduced the heavy-duty LS-98 1-cu. yd. shovel-crane at a press party held on April 8. The unit features a Speed-O-Matic power hydraulic control system, the pressure being generated by

Heavy-duty, 1-cu. yd. shovel-crane features power hydraulic control system

an engine-driven pump, to reduce operator fatigue, provide smooth operating cycles, reduce clutch adjustments, provide accurate control, and reduce downtime. There is no mechanical clutch linkage, as the hydraulic system brings oil under pressure directly to the clutch. The clutch is said to be self-adjusting for heat and normal lining wear. Power load-lowering reversing clutches for either or both front and rear drums is offered.

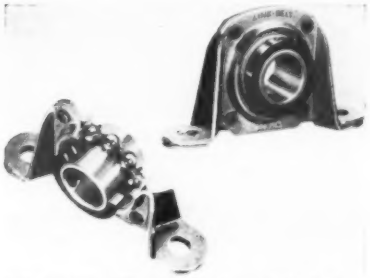
Power steering and two-speed travel gear are featured as standard equipment. The track system is a patented, self-cleaning design, and traveling, steering and digging operations are controlled from the operator's position in the cab. Lower frame machinery is fully enclosed, and a 14-in. ground clearance is featured. Other features include: conical hook rollers on tapered roller bearings for trouble-free rolling action; anti-friction bearings at vital points; splined shafting throughout; enclosed travel and deck gears running in oil; independent chain crowd for shovel operation; a full revolving fairleader to reduce dragline cable wear; and extender cables for dragline and crane booms. Independent swing and travel is offered as optional equipment.

Speed Reducers

W. A. JONES FOUNDRY & MACHINE CO., 4401 W. Roosevelt Rd., Chicago 24, Ill., has announced an expanded line of Herringbone gear speed reducers, ranging from 1 to 1950 hp., and in 60 standard ratios ranging from 1.27:1 up to 355.8:1. All units are available in types suitable for either coupled or overhung load applications. Nine standard shaft extension assemblies and two standard bed plate styles are offered to meet various drive arrangements. Features include anti-friction bearings throughout; high test alloy iron housings; large inspection openings; accessible oil drains and oil level indicators; and balanced gearing and bearing arrangement.

Pillow Blocks

LINK-BELT CO., 307 N. Michigan Ave., Chicago 1, Ill., has announced Series JPS-200 ball bearing pillow blocks with pressed steel housings, designed for applications where speeds are relatively low and loads are light. Free-rolling action and full load capacity are said to be maintained even with minor shaft deflection or normal misalignment. A long inner ring distributes the load evenly over a large shaft area. The blocks are available for shafts from ⅝ to 1¼ in. in dia., and may be installed by slipping the



Ball bearing pillow blocks for relatively low speed and light load applications

inner ring onto a shaft and locking it into position. Slotted bolt holes permit lateral adjustment.

A synthetic rubber lip-type seal, integral with the bearing, provides maximum sealing efficiency to retain the lubricant, and to exclude dirt in dusty and dirty locations. The bearings are lubricated for life.

Hydraulic Loader

HENDERSON MANUFACTURING CO., Cedar Rapids, Iowa, has introduced its hydraulic Model "F" loader, designed and built specifically for use on the Oliver OC-3 tractor. It has a ½-cu. yd. bucket capacity, and is powered by a front end pump. Loader and attachment control is handled by twin double-action lift and bucket cylinders. The loader is equipped with an automatic bucket-leveling device and bucket positioner which indicates the bucket level to the operator. No part of the loader is higher than the tractor when in digging position, thus assuring complete operator visibility at all times. Heavy steel rollers riding on the frame positioners are utilized to prevent swing and sway when digging.

Tractor loader with twin double-action lift and bucket cylinders for loader and attachments control

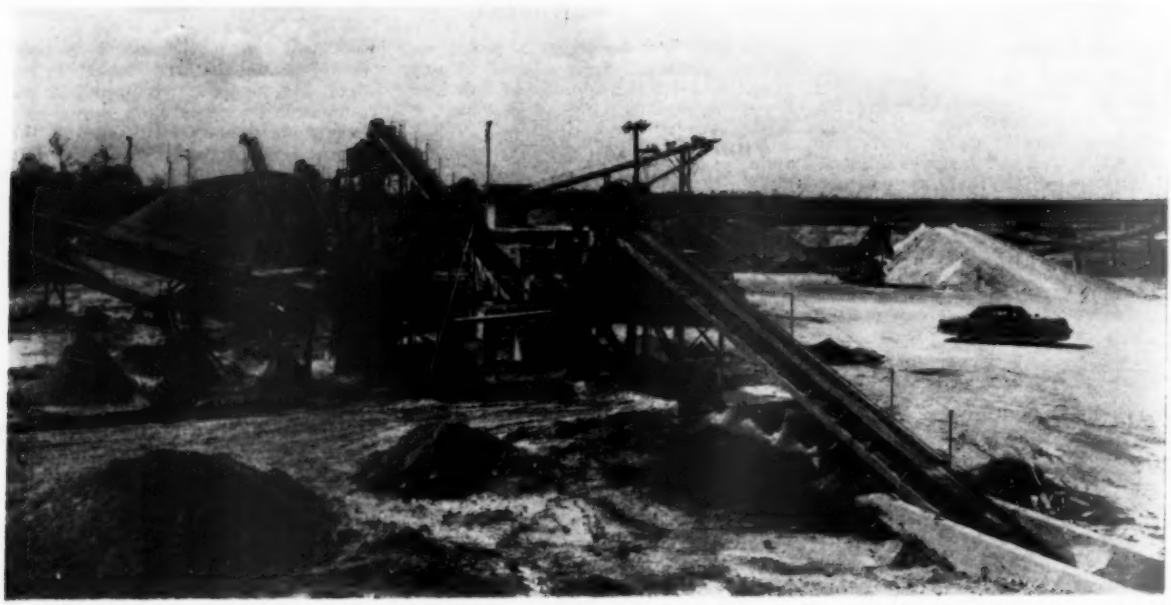
Spray Welder

WALL COLMONOY CORP., 19345 John R St., Detroit 3, Mich., has introduced a metal spray unit for applying hard-facing coatings in powder form. The unit, designated the Model C Spray-welder, is particularly adapted to the application of Colmonoy nickel-base, wear and corrosion-resistant hardfacing alloys to steel, stainless steel and some cast iron and copper alloy parts. Metallizing operations using copper, nickel, stainless steel, brass, lead and zinc in powder form can also be handled by the unit.

Its components include a lightweight aluminum pistol, chromium-plated copper hopper, cast brass carburetor, air regulator, air filter, and oxygen, acetylene and powder hoses and fittings. These are mounted on a panel for wall or pedestal mounting. The pistol has a gas mixing design for flame control and operation safety, and a finned brass head is utilized for increased cooling capacity. The torch tip and cap have been redesigned to give additional strength and provide positive seating of the tip on the head. Oxygen and acetylene valves, for accurate flame adjustment, are located in the handle to provide a more compact unit.

Metal spray unit applies hard-facing coatings in powder form

The unit must be connected to oxygen and acetylene tanks and a factory air supply capable of delivering 10 c.f.m. of dry air at 60 p.s.i. minimum. Five valves in the pistol control the powder and gas flow.



View of plant as seen from ramp at primary crusher. Four crushing units are used; two hammermills, one double roll crusher and a single roll primary unit

INCREASE CRUSHED STONE CAPACITY

To Meet Demands for Diversified Concrete Products

Maule Industries, Inc., grown to be one of the largest rock products companies, builds another new crushed stone plant at Prospect, Fla. Pile-driver drilling and under-water blasting and excavation are some of the unusual practices followed

By WALTER B. LENHART

WHEN MAULE INDUSTRIES, INC., Miami and Miami Beach, Fla., took over the Miami Crushed Stone Co. last year, it became one of the nation's largest rock products producers, having well over 1000 employes. The company now operates four crushed stone operations, eight ready-mixed concrete batching plants, three concrete block plants using a total of eight Bessers, a Doxblock floor and roof slab plant, and precast beams and floor fabricating units, as well as building supply yards located at strategic points in the Miami, Miami Beach, and Ft. Lauderdale areas.

The newest crushed stone plant, which went into operation during May, 1953, is known as the Prospect Plant. It is located about five miles northwest of Ft. Lauderdale. At the same site, a new concrete masonry plant went into production, using two Bessers. Almost simultaneously a new ready-mixed concrete batching plant and supply yard was opened at Wilton Manor, a relatively new suburban district near Ft. Lauderdale.

The main offices of Maule Industries, Inc. are located in Miami Beach. The Red Road plant was described in ROCK PRODUCTS, March, 1949, p. 102, and the story about the block plant at Ojus appeared in September, 1948, p. 120. The Ojus plant includes a crushed stone processing unit. Other plants of the company are the new Prospect plant and the Tropical plant, formerly the Miami Crushed Stone Co. Ready-mixed concrete batching facilities, named after their approximate locations, are: Tropical, Red Road, Lake, River, Beach, Ojus, Hollindale, and Wilton Manor. A fleet of 136 mixer trucks are in operation with a total of 410 rubber-tired units of all types; trucks, passenger cars, etc. The heavier types of equipment are operated until maintenance becomes excessive. Passenger cars are used about two years before replacing with new units. The company has adequate garage and repair facilities, and can fabricate occasional plant equipment parts if it is expedient.

Haulage unit carrying 17 cu. yd. dumps to primary crusher

Land Rehabilitation Plan

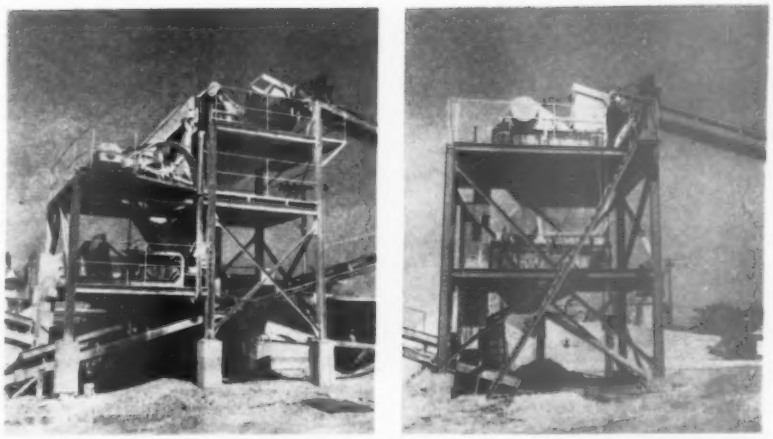
The Prospect operation, which is located near the junction of Prospect Road and State Highway No. 7, includes a sufficient deposit to run the plant for at least 20 years. The land is not only of value for its potential crushed stone resources, but for suburban homesites. The company is looking ahead and has worked out detailed plans for land rehabilitation for a considerable portion of the area. The company's geological department core-drilled the area. After plotting the core drill holes, that part of the area least desirable as a source of stone was set aside and will be re-surfaced

with the soil strippings. In addition a strip about 200 ft. wide is to be left alongside the highways and this land also will be resurfaced. As the water table in the general area is only a few feet below (dry season) the ground line, the placing of strippings over the areas mentioned will raise the ground level several feet, making the land far more valuable for other uses than it is at this moment.

Quarry Operations

The quarried rock is classed as an oolitic limestone with inclusions of coral rock that are quite hard. Monolithic concrete and concrete block made from Florida oolitic limestone are among the best in the United States. This, in a measure, accounts for the fact that Florida uses about five times more block per capita than the rest of the United States. The concrete hardens and gains strength progressively and has a resiliency that is lacking in most concretes made from harder aggregates. Concrete walls using concrete block are far above average strength. Maule Industries Inc., Doxblock are finding a wide acceptance for floor and roof slabs, and on one recent job some 350,000 sq. ft. were delivered. At an older construction job at Key West where high humidity, salt air, and hot weather were factors, Doxblock and 4-in. cast slabs were used on a comparison basis. The Doxblock remain perfect while the slabs streaked badly and surface popped excessively, according to authoritative sources.

At the Prospect plant two sizes of sized and washed rock and two sizes of sand, a masons and a concrete sand, are produced. The sands carry about 10 percent silica. Strippings, ranging from 15 in. to 3 ft., are removed with Caterpillar pans. The stone ranges from 13 to 27 ft. thick. During the drier season the surface of the stone is only a few feet above water and during the wetter parts of the year, the top can be completely covered with water.

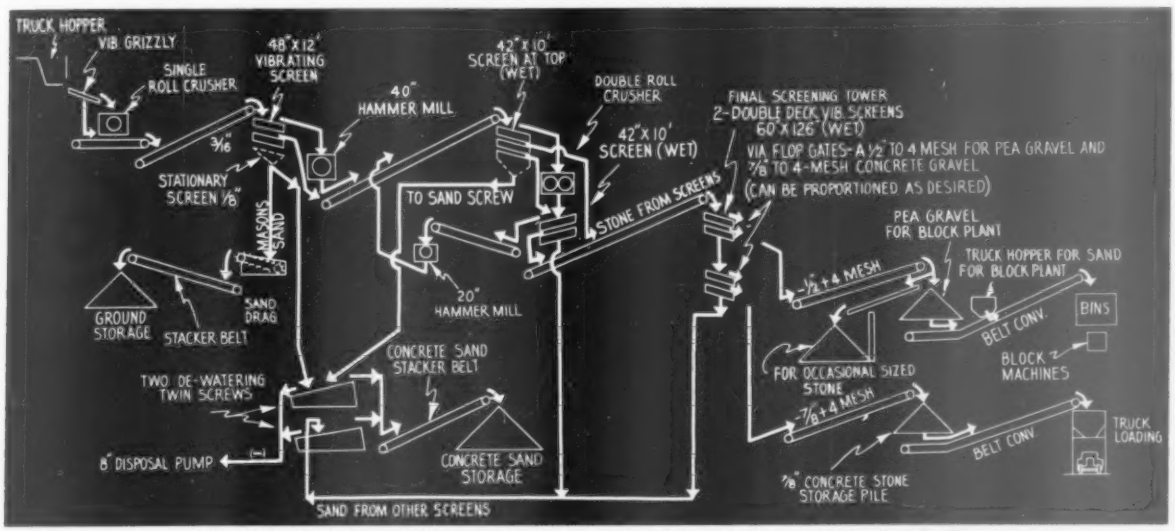


Left: Close-up of central or No. 2 tower with double-deck screen, above, followed by double-roll crusher with three-deck screen, below. Right: Final or No. 3 screening tower with two double-deck screens

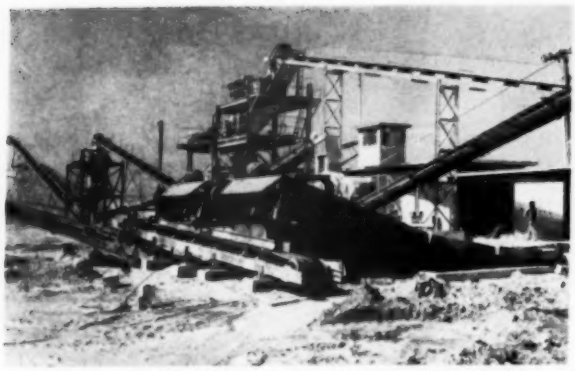
Quarry operations are quite unique, and can be divided into three steps: (1) pile-driver-type drilling and blasting under water; (2) excavating under water with a 3½-cu. yd. dragline and storing the pitrun in high windrows alongside the excavated areas where the material drains — often for months — and at the same time gets harder; and (3) loading the drained stone to Euclid bottom-dump trucks for delivery to the primary crushing section.

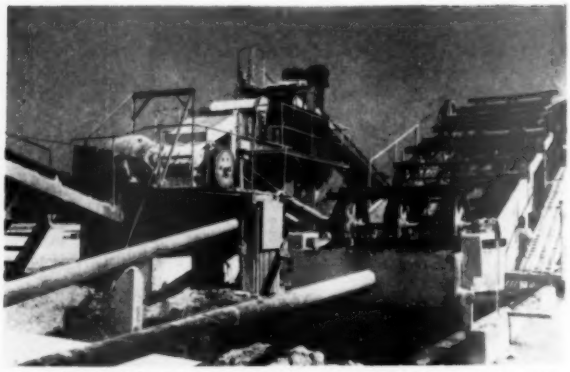
Drilling–Blasting

As the stone in the bed is a semi-consolidated mixture of softer rock and the coral inclusions, Maule Industries, Inc., has developed a drilling method built around the use of a small pile driver that is handled in the pit by an Osgood crane. A steel pipe, about 30 ft. long with a specially-designed cast iron point, is driven into the matrix to the desired depth. It takes only a minute or so to drive the pipe home. Next powder is lowered into the hole and held in place by a tamp stick and the pipe withdrawn leaving the cast iron point in the bottom of the hole. The rig is moved out of the way a few feet for drilling the next hole, and the one just loaded is detonated at once using an electric cap. Thus one hole is shot at a time. The rock breaks easily with the surface tending to be somewhat lumpy. The cast iron point is made of such low grade iron that if it does get into the crushing equipment, it disintegrates with the stone, however, most of the time the point remains below digging levels. Loading for a 21-ft. hole takes 12 sticks of 1¼-in. Atlas 40 percent Giant gelatin with the holes spaced on about 7 ft. centers. The drilling crew, at the time of a blast, withdraw only a short distance as there is very little "throw" to the blast. Up to 180 holes per day can be detonated and broken stone is kept a short distance ahead of the 3½-cu. yd. 54-B Bucyrus-Erie dragline equipped with a perforated bucket. After the material has drained, as previously described, it is loaded to a fleet of four 17-cu. yd. Euclid bottom-dump trucks by a 38-B Bucyrus-Erie shovel



Flowsheet of crushing, screening and washing operations at Prospect plant near Ft. Lauderdale, Fla.





Left: Concrete sand obtained from two sets of double-screw de-watering units falls to off-bearing conveyor. No. 2 screening tower is in center background and No. 3 screening tower follows, to the left. Right: Sand drag recovers masons sand. A 4- x 12-ft. two-deck screen is ahead of a 40-in. hammer mill, all in No. 1 tower

equipped with a 1½-cu. yd. dipper. The Euclids have side boards.

Crushing and Screening

The crushed stone plant is a straight-in-line operation using belt conveyors throughout, ranging from 30 in. wide for the No. 1 belt to 24 in. for all others, and operates without cover. Conveyor structures are of steel. Three screening towers and four reduction crushers are in use. The primary crusher is a McLanahan & Stone single-roll, the secondary is a 40-in. Cedarapids hammermill, the third is a McLanahan & Stone double-roll crusher with welded beads on otherwise smooth shells, and the fourth, a 20-in. Cedarapids hammermill. The crushers are driven by 75-, 200-, 75-, and 75-hp. motors, respectively. The plant has a nominal capacity of 200 cu. yd. per hour with the top sized rock processed being ⅞-in. material.

The primary crusher is fed from the truck hopper by a Type 5-H Jeffrey Traylor electrically-vibrated grizzly with the crushed material falling to a short, horizontal belt conveyor that carries the material to the No. 1 inclined belt conveyor. The crusher and assembled units are located in a concrete-lined trench, below ground level. To enable maintenance men to more easily get at that portion of the equipment that might be described as the chute-area under the crusher, the designers provided that the chute assembly could be rolled back longitudinally and out of the way for repair work. To accomplish this, the chute section is suspended from rollers on an overhead track.

The primary screen or scalper is a 4- x 12-ft. Cedarapids two-deck, vibrating screen (operated wet) with a stationary screen, having ⅛-in. round perforations, mounted just below it. Throughs from this screen flow to the masons sand recovery section. The middle deck of the vibrating screen has $\frac{3}{16}$-in. wire, and the minus $\frac{3}{16}$ in. with portions of the fines that do not pass the stationary screen flow to the concrete sand recovery equipment. The plus ⅞-in. stone from the top deck falls to the 40-in. hammermill. The screen is driven by a 20-hp. Allis-Chalmers motor.

The second section of the plant involves a central screening tower with a 3½- x 10-ft. Cedarapids screen powered with a 15-hp. Allis-Chalmers air-cooled motor through "V"-belt drives mounted near the top. The plus fraction falls to theMcLanahan & Stone double-roll crusher mounted mid-way in the structure. Below the rolls is a second 3½ x 10-ft. Cedarapids double-deck screen (operated wet) also using a 15-hp. motor of the same make. Plus from this screen is returned to a 20-in. Cedarapids hammermill with the throughs returned by belt conveyor to Belt No. 2 that offbears from the larger hammermill. Thus, the crushers in this section of the plant operate in closed circuit with the screens.

Throughs from the screens in the central tower are moved by belt conveyor to the final screening tower where two 60- x 126-in. Hewitt-Robins Eliptex vibrating screens, mounted one above the other, are each driven by 10-hp. Century motors through "V" belt drives. This bank of screens prepares a ⅞ in. to No. 4 concrete aggregate and a ½-in. to No. 4 pea size for the concrete block plant and stone for other commercial but occasional uses. The concrete aggregate is ground-stored over a concrete lined reclaiming tunnel with a Barber-Greene belt conveyor that loads to trucks. Pea size is stored over a reclaiming tunnel with the belt conveyor serving the concrete block plant. At times odd sizes of stone are processed and then ground-stored by the pea stone belt conveyor and a long metal chute that drops material to a walled area alongside the pea stone pile. Wash waters from all screens flow by gravity to the concrete sand recovery units. Four to five gravity type reclaiming gates are used in the tunnels.

Concrete sand is recovered by two twin 36-in. Eagle screws, mounted alongside and parallel to each other. They both unload to a cross belt that in turn delivers to a ground stacker belt. The sand screws are driven by 15-hp. Allis-Chalmers motors through Dodge gear reduction units and V belts. Masons sand is de-watered in a company-made drag, and the material also is ground stored by a second stacker belt. Reclaiming of these materials, and any others, is done by two 1½-cu. yd. Hough Payloaders and a Bay City crane and clamshell. All conveyors are driven through Dodge reduction units (and V-belts) except Conveyor No. 1, and it uses a Falk gear reducer and roller chains. Overflow from the sand dewatering units flows to a pit in which a Georgia Iron

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Wilton Manor batching plant of Maule Industries, Inc., operated near Prospect stone plant

F. S. Davidson, plant superintendent

Portland Cement from OIL SHALE

European experience points to substantial fuel economies in the manufacture of portland cement, using oil shale and limestone. Vertical kilns have been used effectively

By FRED KLOIBER*

EXPERIMENTS CARRIED OUT IN EUROPE have proven the commercial feasibility of using oil shale both as a fuel and ingredient in the manufacture of portland cement at considerable savings in production costs.

In the new manufacturing method, the oil shale which is located in relatively heavy deposits in most countries of the world can be mined at low cost because most deposits are near the surface of the earth.

Chemical Requirements

Added to this is the advantage gained from the dual function of the oil shale in the cement manufacture. The organic matter present in the shale can be used as a fuel for the process of calcining for cement clinker, and since the cost of fuel represents a large share of the total production costs in current cement manufacturing methods, the use of the oil shale can save practically the entire cost of the fuels.

Further, all essential components of portland cement are present in the residues from the burning of oil shales, although their actual percentages vary within wide limits.

On an average, the residues have a two to threefold excessive amount of SiO_2, Fe_2O_3 and Al_2O_3, but only a fraction of the CaO required for cement. But if a sufficient quantity of a good grade and fairly pure limestone is added to the shale to bring the percentage of the CaO up to the required 64 percent, the percentages of the SiO_2, Fe_2O_3 and Al_2O_3 components are at the same time reduced. Therefore, if the right kind of shale is mixed with the right kind of limestone, the ideal composition of portland cement can be obtained.

In considering an operation of this type, it is, of course, necessary to obtain accurate analyses of the oil shale and the limestone deposits on hand. The oil shale, in particular, must be of proper mineral composition for the cement mixture and have a sufficient content of combustible matter for use as a fuel in calcining for cement clinker.

But once the proper oil shale and limestone deposits are obtained, an oil shale cement mill can in many respects be simpler in operation than a normal portland cement plant.

The soft oil shale, containing the fuel, is very often easily broken from the ground and loaded on trucks by ordinary power shovels in an open pit operation. Also the raw limestone can in almost every case be obtained from quarries in the vicinity and transported to the cement mill either by a narrow gage railroad, steel cable way or truck. In many locations also limestone containing some combustible matter is available thus adding to the supply of fuels, which, when in excess can also be used for power generation. Such limestone, called Stinkkalk or Doppelkalk in Germany, has a content of organic matter from 7 to 10 percent, sometimes more. The quantity of limestone, required in an oil shale cement mill, is smaller, than in a normal cement plant, because the soft shale contains some calcium carbonate. The crushing plant can be designed for lighter duty.

Equipment Needed

In the usual cement plant, considerable equipment for storing and handling the fuel is required:

(a) For coal as fuel: Tracks and unloading equipment, storage yards with heavy cranes, sufficient for an emergency supply for about three months' operation, also coal dryers, grinding mills, pneumatic dust conveyors, bins, hoppers and so forth.

(b) For fuel oil: A similar elaborate equipment for the oil is required for unloading, storing, pumping, heating, etc. Similar to the coal-fired plant, an emergency storage for three months must be kept, which requires a similar dead investment.

If shale is used as raw material, no such fuel handling equipment, nor such three months' emergency stores are needed, which will result in considerable savings in capital and operation.

According to figures, published by the U. S. Bureau of Mines, the actual cost for blasting oil shale and transporting it to the retorts at a large western experimental plant is less than 30 cents per short ton, not including the general overhead and certain extras, which will, however, not amount to more than another 30 cents, making the total cost of production 60 cents at that plant. Of course, this plant is equipped with modern machinery and operates on a large scale. Therefore, if we consider a cost figure of $1 per ton of shale at the retorts or the kilns, we can also say that the fuel contained in this shale does not cost more either. In the use of the oil shale, therefore, this would make the price of the fuel as low as $.005 per pound. Compared with a fuel oil of say, $2.50 per bbl., it would result in a saving of more than 90 percent. And if a little more than ½ gal. of oil is required to make one barrel of cement, the actual cost of the fuel per barrel of cement would be only a fraction of a cent. This makes possible a saving of something like 25 cents per bbl. permitting a reduction of more than 10 percent of the total costs including all overhead expenses and extras. The savings for a plant making 300,000 tons per year would be more than $400,000.

Use Vertical Kilns

Due to the fact that the fuel enters the kiln mixed with the raw feed, ordinary rotary kilns cannot be used, because they operate in counterflow with the raw material being charged on the upper end of the kiln and the heat from the lower end. With the oil shale, only a parallel flow operation is possible which is typical for the vertical kilns.

The properly crushed, screened and mixed raw material is raised by an elevator and put into a hopper on top of the vertical kiln from which predetermined quantities are automatically released into the kiln in fixed time intervals. The kiln is fired from the bottom, the flame bed being maintained at about the third point level of the kiln. The air for the combustion enters the kiln at the bottom and is preheated on its way upward by absorbing heat from the calcined clinker. The mass of the material is slowly moving downward, continuously discharging cooled clinker at the bottom. Modern vertical kilns can now be operated and controlled as well as a rotary kiln, and can produce cement clinker of the same high and uniform quality. The heat requirements are lower, than in a rotary kiln process because of the better possibilities for heat recovery. Also the first cost of such vertical kilns is lower than for a rotary kiln.

All the rest of the equipment required for a cement plant is the same in both types of plants.

In conclusion, it can be seen that an oil shale cement plant offers a

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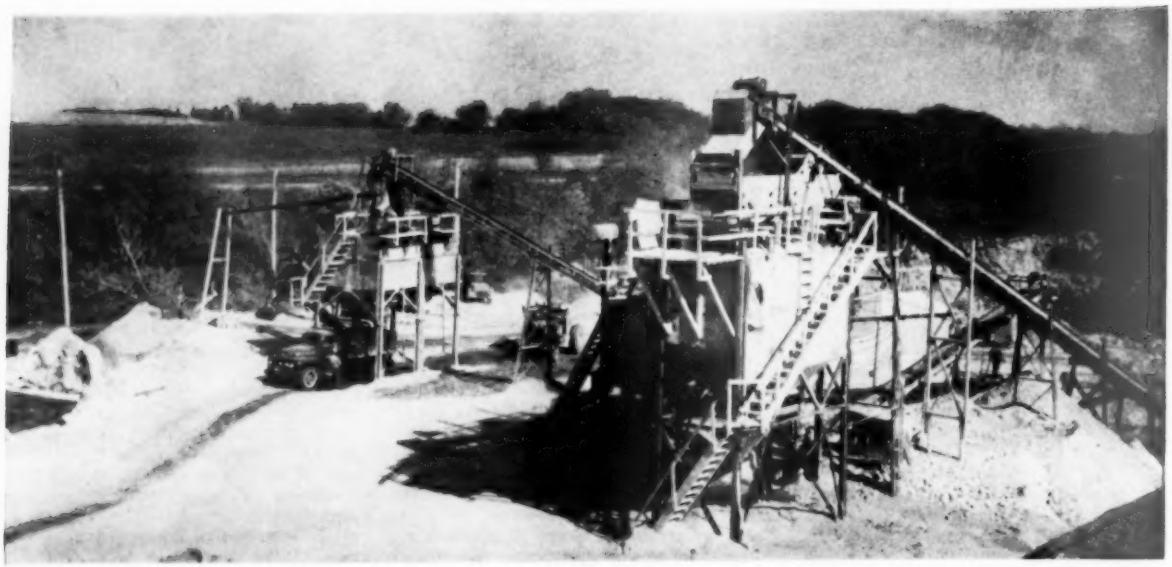


View of plant with truck-loading bins, to the left. Materials are given a final rinsing before going to bins

Producing HIGH-GRADE "SUGAR" STONE

Weaver Construction Co., Alden, Iowa is a large producer of high-calcium limestone for the sugar beet industry, agricultural limestone and road materials

By RAY C. GIDDINGS

"SUGAR" STONE represents a considerable percentage of the production from the quarry of the Weaver Construction Company, Alden, Iowa, Hardin County. It is processed from limestone graded to specifications calling for 100 percent passing a 6-in. mesh and 100 percent retained on a 3-in. mesh with a chemical content of plus 97 percent $CaCO_3$. Stone from the quarry runs 99 percent $CaCO_3$.

The sugar stone is shipped to Grand Island, Nebraska, for final processing by the Steffen method, used throughout the United States, employing a so-called Belgian-type kiln. Fuel to fire the kiln is coke. Principal reaction in calcining is $CaCO_3$ + 43.3 Cal. $\rightleftarrows$ $CaO + CO_2$ yielding a material embracing these specified qualities; freedom from re-combined carbon dioxide, retension of large active surfaces after grinding, containing only a small amount of undissociated calcium carbonate, and less than 4 percent silica. The resultant product is used extensively in the sugar beet industry for fluxing and purifying.

Blasting Practice

Overburden at the quarry, which averages 1½-ft. of silt soil, is removed with a Caterpillar tractor and scraper. Drilling is done with a McCarthy auger drill. Six inch holes are drilled 37-ft. deep with a 14-ft. burden, and spaced 18 ft. apart. The drill penetrates at an average rate of approximately 12 ft. per hr. Holes in successive rows are staggered. Explosive is a DuPont Nitramon dynamite, detonated with a Nitramon primer, primacord, and electric firing caps. The caps are used in five delays, timed 25 milliseconds apart. Firing begins at the center of the first row with an instantaneous cap then working outward from the center in each successive delay following through the next delays in similar rotation in succeeding rows.

Quarry stone is loaded with a 1½ cu. yd. P & H power shovel into three 8-cu. yd. Koehring W-60 Dumptors. The haul to the primary crusher is 1000 to 1500 ft., and with this equipment 200 t.p.h. can be readily transported to the plant. One extra Dumptor is held for a standby in case of any breakdown.

Robert R. Weaver, vice-president, in front of scale house

Crushing and Screening

Primary crushing is done with an apron-fed Cedarapids 2236 portable jaw crusher set for 7-in. top size in processing sugar stone. Throughs from the primary crusher are transported by a 30-in. belt conveyor, 30-ft. centers, to a short belt loaded hopper located over the 30-in. belt conveyor, 140-ft. centers, inclining up to the screening and crushing plant where the material is discharged over a 4 x 14 ft. three-deck vibrating screen. This screen is located over an 8 x 18 ft. loading bin. When producing sugar stone, the top deck has 6-in. mesh followed by 3-in. and ⅛ in. mesh decks.

The plus 6-in. goes by chute to a 4033 Cedarapids hammermill for secondary crushing and return by 30 in. belt conveyor, 40 ft. centers, to the main belt conveyor. The plus 3 in. is discharged into a storage bin, and the plus ⅛ in. moves by chute to a second vibrating screen. In this sequence of operations, a minus 1½ in. stone may be discharged into a bin, or move by chute to an Eagle log washer from which it is elevated by means of a 30 in. belt conveyor, 60 ft. centers, to another double loading bin. An al-

ternate flow would discharge materials from the screen, by-passing the washer by chute to a 30 in. belt conveyor, 25 ft. centers, which transfers to the 30 in. elevating belt conveyor previously referred to. In a third alternate flow of materials, stone from the screen is returned by chute to the hammermill. Minus ¼ in. stone from this screen is agricultural limestone which is binned. Agricultural limestone comprises approximately 30 percent of the plant production.

All aggregate going through the Eagle washer is subjected to a secondary spray cleanup wash at the end of the 30 in. belt conveyor, 60 ft. centers, before it passes to bins.

Other aggregates are produced for road stone, concrete stone, and asphalt concrete material. As indicated, the plant may be operated wet or dry.

Excess water accumulating in the quarry, due to springs and seepage, is drained into a sump, from which it is pumped over the north wall of the quarry into the river. The rate of incoming water requires pumping 8 hrs. daily. A 50-hp. high pressure pump is used for this purpose. Through a 6 in. line from the sump, water is pumped into the river and also partially diverted for use in the main washer. A take-off to supply the secondary washer also comes from this line. Another take-off from the 6-in. feeder line fills a 500-gal. storage tank used for a cut stone operation.

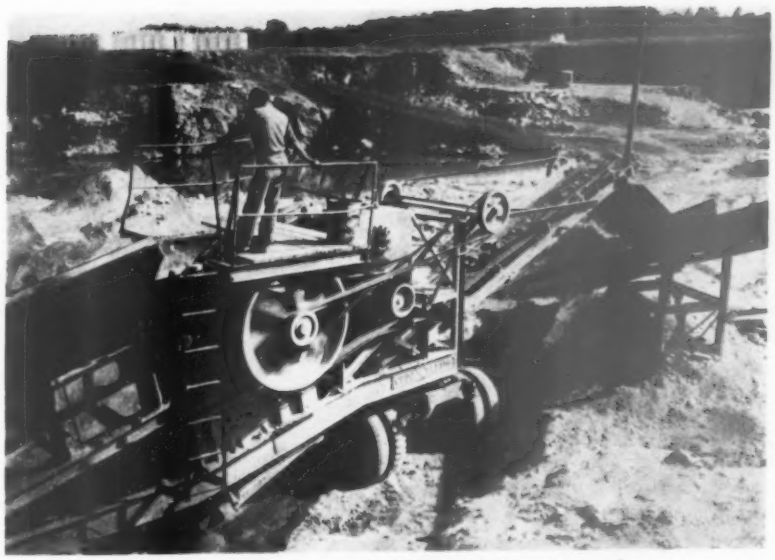
During the early phases of operation, considerable trouble was experienced in the chute distribution system that required many changes to bring the plant to its present efficient operation. Chutes had to be shortened and re-aligned, numerous angles and turns had to be eliminated and steeper inclines added to insure a continuous flow of materials.

Plans are underway for a major plant change incorporating continuous material stockpiling by belt conveyor over reclaiming tunnels. In a section of the office building, a laboratory is operated as a material control. All aggregate produced at the plant is periodically tested to insure a high standard product.

Originally this company was owned and operated by M. O. Weaver, under the name of M. O. Weaver, Inc. An illustration shows an original plant of 30 years ago. Wood W. Weaver is president, Robert R. Weaver is vice-president, George L. Gibson is general superintendent, and Vinal O. McCoy is secretary-treasurer.

Canadian Gypsum Products

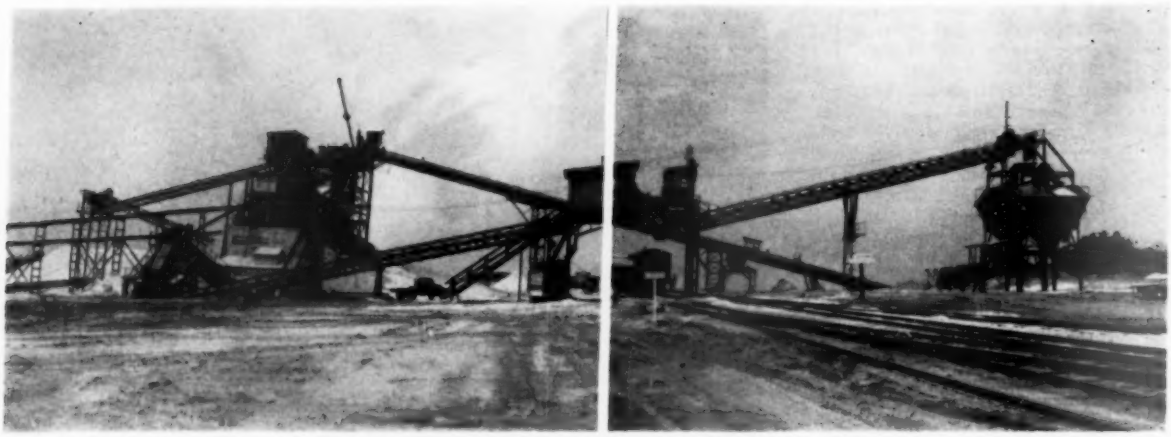
CANADIAN PRODUCERS shipped larger quantities of gypsum wallboard, lath and sheathing during the first quarter of 1954 than during the same quarter of 1953. The 1954 shipments amounted to 120,171,629 sq. ft., compared with 118,660,414 sq. ft. for the 1953 period. Shipments of gypsum plaster during the first quarter of 1954 totaled 55,572 tons, compared with 53,422 tons for the corresponding 1953 period.



Portable primary jaw crusher unit feeds main belt conveyor to plant

Showing how M. O. Weaver Co., predecessor of present company, stripped deposit with horse-drawn scrapers in the early days

Log washer installation. Note pipe connection from washer



View of principal plant structures: washing, screening, crushing and sand recovery plant, to the left; carloading section in the center; and truck-loading bins, to the right

Recover Specification Sand and Gravel From Clayey Deposit

Becker County Sand & Gravel Co., solves problem of clay removal at Marlboro, S. C. plant by the use of scrubber screen, blade mills and liquid cyclones

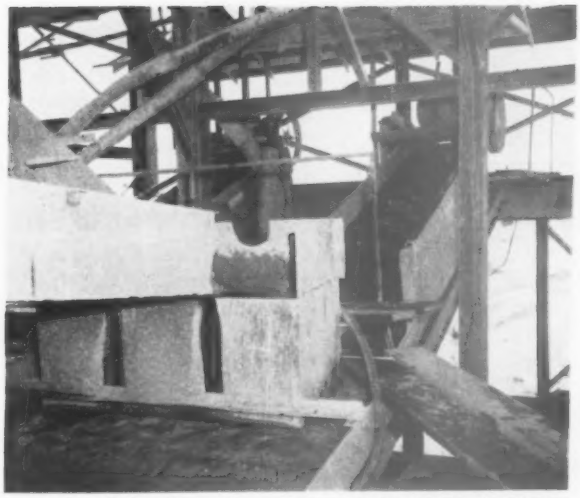
By WALTER B. LENHART

A NEW PLANT was recently placed in operation by the Becker County Sand & Gravel Co., at Marlboro, S. C. Marlboro is about 20 miles southeast of Cheraw. The company also has another new plant in the early construction stages at Lillington, N. C. With the completion of the Lillington plant, the company will have six sand and gravel operations in the Carolinas located at Fayettesville, Marion, and Lillington, in North Carolina; and at Camden, Marlboro and Kathwood, in South Carolina. The Kathwood operation, operated under the name of the Carolina Aggregates, Inc., was described in ROCK PRODUCTS, May, 1952, page 68. The field scalping operation of the Fayettesville plant was described in June, 1952, page 104. The Becker County Sand & Gravel Co. and associated companies own a large number of sand and gravel, and crushed stone plants in Minnesota and Iowa.

The Cheraw operation is an excellent example of depletion in the rock products industries for the deposit has been exhausted and the plant recently dismantled. However, a black top plant continues to operate at Cheraw. The company has ground-stored material still on hand. Operations of the company will continue to be directed from Cheraw although a new office will soon be occupied by the staff. The structure is on Highway 52 at the edge of town.

Possibly the most outstanding feature of the gravel in the Marlboro,

Left: Five compartments below hold aggregates with concrete sand piled outside farthest separating wall. Right: Other side of plant, showing two conveyors that take crushed gravel from cone crushers for delivery to screen and oversize returned to crushers



Left: Two 5- x 12-ft. screens for the preparation of finer sizes of gravel (minus ¾-in.). Blade mill may be seen above. Right: Showing installation of two parallel sand screws

Camden, Fayettesville, and Lillington areas is its association with large and variable amounts of clay. As the operating staff of the company has been fighting clay for 15 years, a large amount of experience in processing materials of this type has been acquired. The new Marlboro operation is no exception. In fact it is an exceptionally tough one. The pit-run material at Marlboro is a sticky red to brown material with a clay content so high at times that it is difficult to see gravel in the matrix. Once the material has been processed the gravel is light colored with possibly half of it being a pure white translucent quartz. The gravel is small in size; mostly in the minus $1\frac{1}{2}$-in. range with exceptional pieces in the $1\frac{1}{2}$ to 3-in. size. The deposit will possibly average 70 percent minus ¼ in. and 30 percent plus ¼ in. and about half of the minus ¼ in. is made up of clay particles and excess fines.

At Marlboro the company has a 3000-acre gravel deposit. The area is flat and adapted to agricultural uses. Approximately 12 to 15 ft. of soil strippings are removed to get the same amount of gravel.

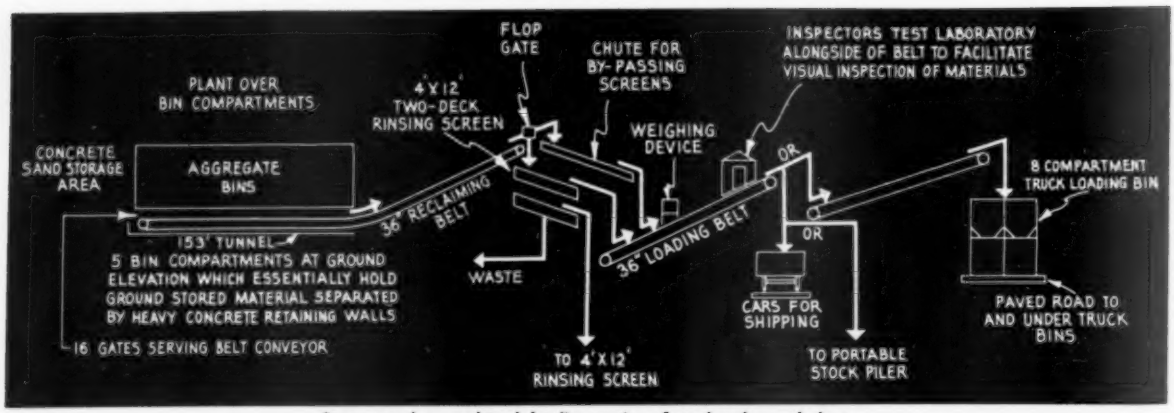
Stripping is done at night, using two draglines, with the stripping cast back into worked out portions of the pit. The ground is wet but three gasoline engine-driven portable pumps keep the water in the pit to below working levels. Two pits are in operation, both within sight of each other with the hauls being one mile and ¾-mile, respectively. A fleet of eight 13-cu. yd. Euclid bottom-dump trucks do the primary hauling. The two draglines in the pits are both Limas; one is a No. 802 with a 2¼-cu. yd. Page bucket and the other is a No. 901 having a $2\frac{1}{2}$-cu. yd. Esco bucket.

Test-Boring of Deposit

Before taking over the deposit at Marlboro, the area was thoroughly tested, using a prospecting rig purchased in California. Mr. Evans saw the rig in operation near Los Angeles digging cess-pools for a housing project and adapted it for test boring. Manufactured by California Welding and Blacksmith Co., Los Angeles, Calif., it is an auger-type machine digging a 24-in. diameter hole with provisions for using a 25-in. casing. It is a sturdy unit, and will dig to 40-ft. before additional drill stems need be added. At Marlboro, it put down 30-ft. holes in 2 hr. per hole.

The first step in processing the high-clay matrix at Marlboro begins at the primary feeder: a dry load, or as dry as can be obtained, is dumped and then followed with one of the wetter loads. In addition, a surge pile is kept alongside the truck unloading hopper with the material bull-dozed into the hopper so that the fleet of trucks can be kept moving despite plant stoppages. This rough preliminary blending facilitates feeding the sticky material and also helps wash-

Left: A 4- x 12-ft., two-deck rinse screen over loading belt conveyor. In the foreground is the continuous weighing machine over conveyor. Right: Close-up of rinse screen with chute to by-pass sand over it



Storage and car-and-truck loading section of sand and gravel plant

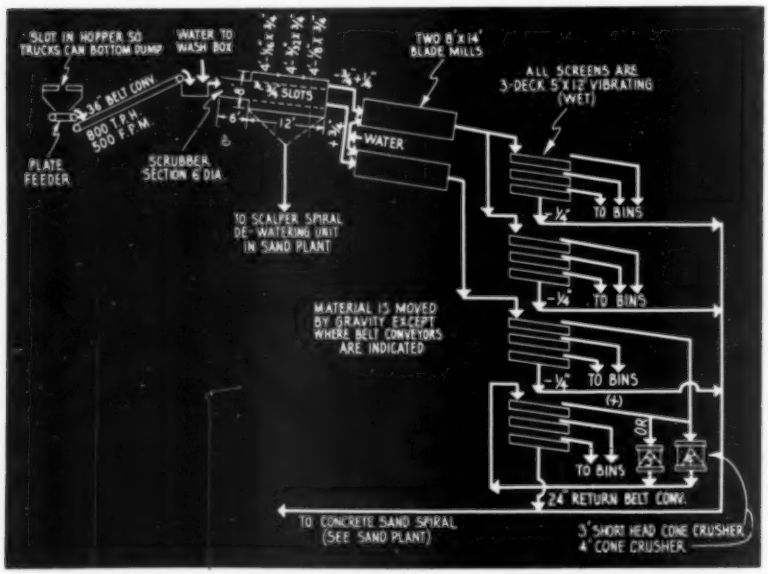
ing and scrubbing operations that follow.

A plate feeder moves the pit-run to a 36-in. Goodyear belt conveyor that operates at 500 f.p.m. and carries a load up to 800 t.p.h. Stationed alongside this belt is a laborer who picks off some of the large clay lumps. In doing this he uses a three-tined steel fork with tines about 6-in. long. It is a rake-like tool with a handle about 4 ft. long. The operator simply scrapes off the clay lump and it falls to an improvised hopper below. The hopper is a body from an old bottom-dump truck, mounted at such an elevation that it can be in turn dumped directly to the truck. This operator removes up to 26 tons of clay balls per shift.

Washing and Scrubbing Section

The washing and scrubbing section is built essentially around the use of a rotary scrubber-screen that removes most of the fines and splits the gravel portion into two fractions that are again scrubbed in rotary blade mills. Copious amounts of fresh water are added along the line with a total of 7000 g.p.m. being used. This large amount of water injects complications with reference to the later recovery of the finer sands. In addition to the hand-picking on the main belt conveyor, two other stations are provided. One is at the end of the rotary scrubber screen, and the other is at the low end of one of the vibrating screens that handles the coarser gravel. At the first station, the operator uses a fork previously described. At the second station the clay balls are smaller so hand-picking is practiced. At both stations, a chute is provided with the clay balls being sent to the waste piles alongside the plant. The hand picking at the low end of the screen, previously mentioned, is ahead of the cone crushers. If clay balls of any appreciable dimension get into the cones, the clay balls pancake and slow up crushing.

The flow diagrams give details as to the general practice. It might be well to point out that the washing and screening and sand recovery equipment are all mounted over a ground storage area with the different sizes of aggregates kept separate by heavy concrete separatory walls. There are eight bins in all. Flow to the various equipment is by gravity with the exception of the off-bearing belt conveyors from the cone crushers, and the return belt conveyors to the screening section from the crushers. Exclusive of the travelling stockpiler, there are a total of six belt conveyors in the plant.



Flowsheet showing scrubbing and screening equipment in gravel section of plant

Sand Recovery System

The sand recovery system is of particular interest. The rotary scrubber screen that receives the pit-run from the wash box has a 6 ft. long and 6-ft. diameter scrubber section. It has an outer screen section that is 8 ft. diameter and 12 ft. long, and is made up of 4-ft. sections of $\frac{1}{16}$-in., $\frac{3}{32}$-in. and $\frac{1}{8}$-in. slotted wire with all slots being $\frac{3}{4}$-in. long. The smaller slots are at the feed end of the rotary. The throughs from this screen flow to a 3- x 25-ft. Eagle single screw sand spiral. The plus sand from this spiral is split into two fractions. One fraction is wasted and sent to the tailing pond, and the other fraction flows to a second Eagle spiral of the same size as the first mentioned. This screw produces the concrete sand that falls to the storage compartment at the end of the bin section. When this pile gets too big, a Caterpillar D-7 dozes the material to one side. Heavy streams of fresh water also assist to sluice this sand away from the immediate area with the tractor working in the sluice.

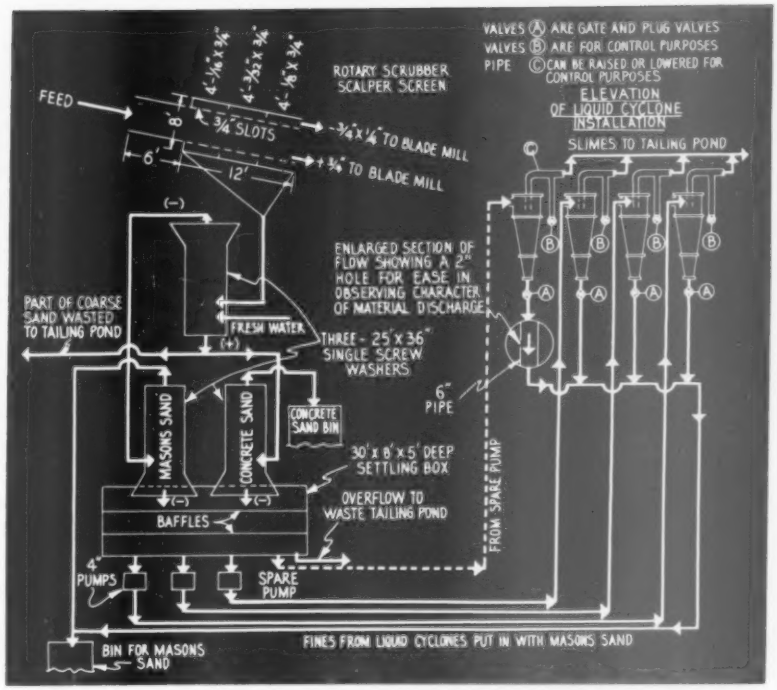
In the first Eagle, additional fresh water is added so that the net turbulence is sufficient to carry, as an overflow product, most of the finer sand to a third spiral of the same size as the other two. This spiral produces the masons sand.

The last two mentioned spirals are mounted side by side so that their overflow drops immediately into a settling box that is essentially an enlarged section of their combined pool areas. This steel box is 30 ft. long, 8 ft. wide, and 5 ft. deep. Its main purpose is to allow the fine sand to settle in a dilute pulp involving exceptional volumes of water. Across this settling box and parallel to its long axis are

two vertical baffles that extend down into the pulp a short distance. Their purpose is to confine the turbulence in the box to that section closest to the overflow weirs of the two parallel spirals. (See sketch)

Obviously in such a large and quiet pool some clay settles with the sand. This material is separated from the settled sand by pumping the material into a battery of three liquid cyclones that are mounted near the top platform of the main structure. There are four cyclones provided but one is a spare. The processing involved here requires the use of three 4-in. Georgia Iron Works centrifugal pumps that each handle about 800 g.p.m. There are four pumps, one a spare. The pumps are mounted below the large settling box, and the settled sand-clay pulp is picked up by a pump and sent to its 25-in. diameter Whirlcone, (or liquid cyclone). The "pull-down" of these pumps is a factor as regards settling of the fines. The pumps each use a 25-hp. motor, and the liquid cyclones operate at 18 to 20 p.s.i. At this pressure, and due to the material being pumped tangentially into the Whirlcones, an intense centrifugal action is set up within the cone. This results in a separation of the coarser material at the outer perimeter of the pulp within the unit. This coarse material works downward and is eventually discharged at the lower apex of the cone. Fine slimes, excess fine sand and the clay particles form the inner vortex of the swirling mass within the liquid cyclone, and are discharged near the top center of the cone. Each cone has a 1½-in. discharge at the sand outlet with both conventional gate and plug valves being used on the different cyclones. On the slime discharge line is a second valve that can bleed air into the unit, and is a second control feature. A third control feature includes the slime discharge pipe within the cone which can be raised or lowered. Lowering it would tend to put more coarse sand into the waste product. The fine sand collected by the Whirlcones is continuously blended into the sand from the masons sand spirals and falls to the storage area below.

At the Chicago meeting of the National Sand & Gravel Association last February, Mr. Evans, vice-president in charge of production for the southeastern division of the Becker County Sand & Gravel Co. gave a talk on the use of these liquid cyclones that are used in most of the company's plants. They standardized on the 25-in. diameter unit. The paper by Mr. Evans was reported practically in full in ROCK PRODUCTS, March, 1954, page 87. The performance of the liquid cyclones indicates that with roughly 60 percent passing the 200 mesh in the feed, a separation between the clay particles and the fine sand is accomplished, resulting in spigot discharge having 10 percent passing the 200 mesh screen. In this respect performance at Marlboro practically parallels results obtained at other plants of the Becker



Flowsheet of concrete and masons sand recovery section

Sand & Gravel Co., the gradations of which were given by Mr. Evans in Chicago. For the readers' convenience, we are repeating these data:

Intake		Discharge Gradation	
No.	Percent	No.	Percent
4	100 passing	4	100 passing
8	100 passing	8	100 passing
16	99 passing	16	99 passing
30	94 passing	30	85 passing
50	85 passing	50	50 passing
100	68 passing	100	20 passing
200	59 passing	200	10 passing

Each liquid cyclone produces 6 to 7 t.p.h. The discharge from the bottom of the cone is quite liquid at times, and as it is blended continuously into the masons sand from the sand spiral, plus ground storage, ultimate drainage through the sand pile results in an acceptable product. The slurry pumped to the cones is 8 to 10 percent solids.

A continuous overflow at the rectangular settling box is maintained. This insures a constant suction head to the pumps and also eliminates the clay still in suspension.

Returning to the gravel section: the rotary scrubber screen prepares two gravel sizes; a minus ¾ in., plus ¼ in., and a plus ¾ in. The smaller, first mentioned size flows to an 8- x 14-ft. Allis-Chalmers blade mill along with an adequate supply of fresh water. After passing through the rotary scrubber (blade mill) the stream is split to two 5- x 12-ft. three-deck vibrating screens, operated wet; one is an Allis-Chalmers Ripl-flo and the other a Simplicity. The sizes of gravel produced fall to the storage compartments below.

The plus ¾-in. material from the inner jacket of the scrubber screen flows to a second 8- x 14-ft. Allis-Chalmers blade mill. All of the product from this scrubber then flows to a 5- x 12-ft. Simplicity three-deck screen. Remaining clay balls on this

(Continued on page 92)

Portable stockpiler, mounted on railroad flat car, ready to unload 50-ton hopper

View of quarry floor showing crushing and screening plant and inclines, to the left

More Than Double Lime Kiln Capacity

M. J. Grove Lime Co., Stephens City, Va., installs vertical kiln with an integrally located gas producer, having center and side burners, with recirculation of hot gases through gas producer. Core averages less than 3.3 percent and fuel ratio is 6 to 1

By BROR NORDBERG

PERFORMANCE FIGURES for the modern producer gas-fired vertical lime kiln of M. J. Grove Lime Co., Stephens City, Va., as taken from plant records, disclose that this installation has been brought to the highest efficiency attainable to date for such an operation.

During the months of October and November, 1953 (the operation was inspected in the Fall) the kiln was producing high calcium lime, including core, at an average rate in excess of 80 t.p.d. with a fuel ratio of approximately 6 to 1. Converting to standard units of measurement, production was averaging 2800 lb. of lime per sq. ft. of shaft area as measured just above the burner level, with a fuel consumption of 4,567,000 B.t.u. per ton for total output. No record was kept of unburned material.

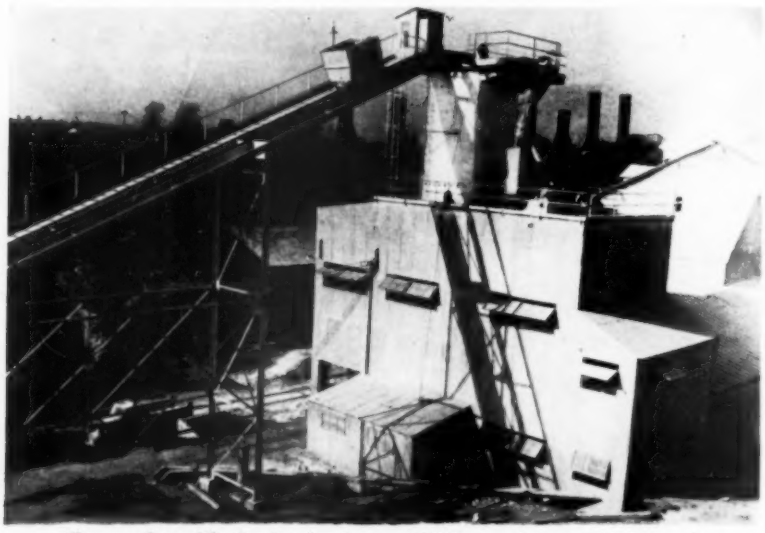
The actual figure for fuel consumption, which would be a truer measurement of thermal efficiency, is really better than that, probably about 4,250,000 B.t.u. per ton of total production, because the average figure from the records is not on the basis of continuous operation. The fire is slowed one day per week which necessarily results in heat losses which show up adversely in the record.

For the period averaged, the trend in production from day to day was upward, with a high of 89.5 total tons for one day (fuel ratio 6.4:1 on corrected basis), indicating that performance will continue to be improved. With installation of a new calcination finishing zone, recently completed, production of lime is averaging 76 tons of lime per day with a fuel ratio of 5.5:1. Quality of the lime is improved and core is averaging only 3.3 percent. It is expected that this kiln, ultimately, will closely approach the performance of modern mixed-feed kilns, which use high priced coke for fuel and, of course, have no gas producer radiation loss.

The Grove kiln results have been achieved through cooperative effort between management of the company, its operating force and the technical designer of the kiln installation. The figures serve to point up what can be accomplished through accumulating experience in meeting operating problems and taking corrective action as they arise.

Much credit is due the operating crew which, in collaboration with the kiln designer, has learned to anticipate and appreciate conditions requiring adjustment, and what to do to compensate for operating changes that effect performance. It has been a case of paying close attention to all details related to operation, and making adjustments to conform with changing requirements so as to keep output high and minimize down time.

(Continued on page 68)



Close-up of new kiln showing charging car. Old kilns may be seen in background

How to keep crawler parts operating longer

Replacing worn shovel parts is costly ... for example, the sprocket, tumbler and track assembly illustrated, which represents a considerable outlay.

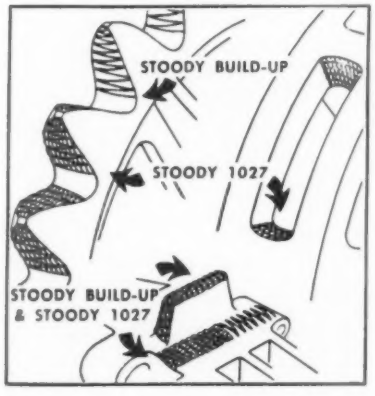
The experience of a large pipeline company operating in the West, provides a good example of maintenance procedures that cut replacement costs and save lost equipment time. Two sets of sprockets, tumblers and tracks are maintained for each backhoe. The spare set is rebuilt and hard-faced on regular shop time. It is ready for instant use when needed. When the track shows signs of slipping, the rebuilt equipment is sent out, worn parts are removed and the spares installed on location.

NUMEROUS ADVANTAGES

Work schedules in the welding department are thus smoothed out, since rebuilding and hard-facing jobs can be used as "time fillers" at the welder's convenience without overtime costs.

Shovel down-time is reduced. Only enough time is lost to pull worn assemblies and substitute the spares. Shovels are immediately put back on the job.

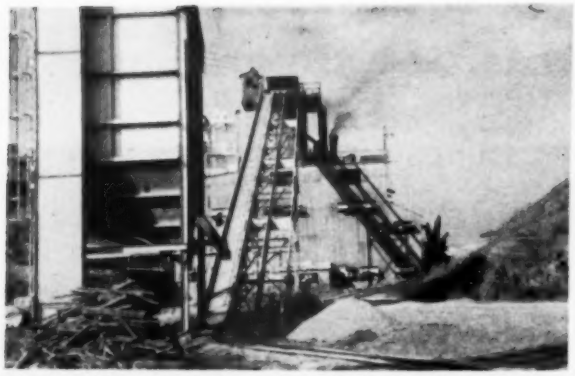
Although no exact record is available, careful observation over a long period of time indicates an almost indefinite increase in service life for these specific parts. The procedure has proved so successful it is now adopted as standard practice.



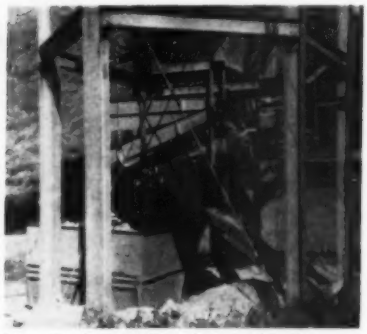
REBUILDING & HARD-FACING PROCEDURES

Wear patterns are the key to the most effective use of hard-facing. Worn areas of sprocket teeth, lugs and tumblers are rebuilt to within $\frac{3}{16}$" of final size with Stoody BUILD-UP, which provides a rigid base to properly support the hard-facing alloy. A final pass of Stoody 1027 supplies good wear resistance with high impact strength. These same alloys are used on the pads to restore size and renew life.

These and other hard-facing applications are fully described in the Stoody Guidebook. Ask your Stoody dealer or write for a free copy.



Left: New kiln in the background. In the foreground is limestone bin serving charging cars. Right: Limestone storage bin for new kiln is on right; shown here is conveyor for rejected fines through vibrating feeder



Stone is charged from bin to charging cars over a vibrating feeder with grizzly bars to reject fines to spout on right

This kiln has been operating since September, 1950. Production did not exceed 34 tons of lime per day until late in 1952. Early in 1953, output had been increased to 70 tons per day, including core. During that interval, the lime burning crew had learned much about firing adjustments to compensate for variations attributable in large part to the characteristics of the stone, and certain kiln adjustments had been made to minimize down time. Further refinement in making corrective adjustments to conform to firing variables have reflected in the recent more favorable results.

The stone at Stephens City is identified as Mossheim limestone of the Beekmantown formation. It has an analysis of 98-99 percent Ca CO_3, is soft, has little abrasiveness and has a tendency to breakage. Moist particles have a tendency to spall in the pre-heating zone of the kiln. The stone disintegrates in conversion to lime, resulting in a tendency to fuse and stick to the kiln wall. This is characteristic of most limestone in this area. An unusually high exhaust draft, of 7 in. w.g. or more, is required, as a result, in order to get high capacity.

The stone formerly varied somewhat in size range, with changing amounts of oversize and undersize particles, which are dependent on excavating conditions and other production considerations. The stone is mined and the kiln feed was open-hearth flux stone size ranging from 4 to 10 in. (Presently 4-in. to 7-in. stone is being fed to the kiln).

These stone variations and characteristics had considerable adverse bearing on kiln performance as well as the quality of the finished material which could very seriously reduce output and thermal efficiency, if the operating personnel were not qualified by experience to meet the conditions. Since the more uniform size stone is being fed to the kiln, conditions have been greatly improved.

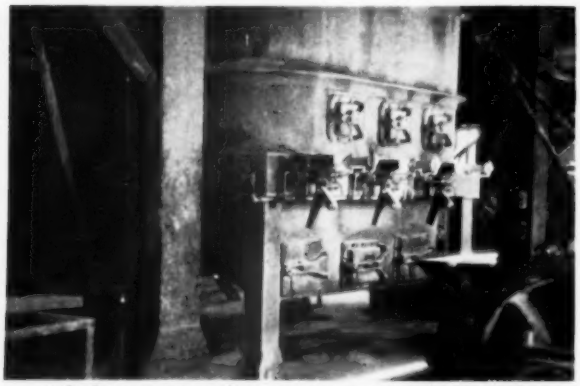
Kiln Design

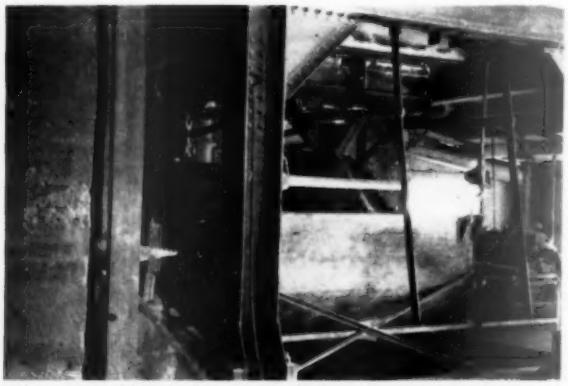
The kiln installation is of the latest Azbe design throughout, consisting of a vertical kiln operated in conjunction with an integrally located gas producer, with center and side burners and re-circulation of hot gases through the gas producer. Hot gases are withdrawn from the level of incipient calcination at about 1650 deg. F., and mixed with air for recirculation as a high temperature blast through the gas producer.

The kiln has a 12-ft. 2-in. x 14-ft. 2-in. shell and its total height from the draw floor level is 58 ft. It is lined with abrasion-resisting brick, and has basic refractory brick through the hot zone. Stone is charged into the kiln overhead by skip cars pulled up an incline. These cars also serve to fill the overhead coal bin from which the gas producer is fed by gravity.

Hot gases are drawn from the kiln at the level where the stone leaves the pre-heating zone, for the purpose of recirculation through the gas producer. Temperature of the producer blast mixture is 750-800 deg. F. and its CO_2 content is 15-19 percent. Producer gas temperature is held at 1500-1600 deg. F. This is the recently developed Azbe re-circulating system which was discussed in ROCK PRODUCTS, December, 1953, page 111. It was devised to improve kiln temperature control, to improve gas producer operation and to eliminate completely clinker formation in the gas producer. The kiln and gas producer function as an interlocked unit for the efficient operation of both.

The producer has Azbe pneumatic-operated grates. The kiln line draw hopper is suspended from a scale so





Left: Gates on gas producer are air-operated. Right: Lime is drawn into scale suspended hopper for accurate check on drawing operation

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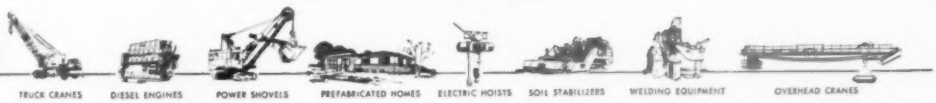

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that the weight of lime from any draw may be determined immediately with accuracy.

Limestone Handling

Operations at this plant were started in 1900, primarily to produce chemical and metallurgical grade lime, but have been diversified over the years. Open-hearth and blast-furnace limestone, manufactured sand and agricultural limestone are products that have been added over the years.

Originally, the stone was excavated as an open quarry from a high calcium ledge that slopes downward at a pitch of 30 deg. As operations progressed, stripping became prohibitive and underground mining was substituted. High-grade stone occurs in a 100-ft. stratum, topped with high silica-content stone, with dolomite occurring immediately below.

Mining is by conventional pattern, room-and-pillar, blast holes are driven by drifters and excavation is by three ¾-cu. yd. power shovels loading into skip cars which are pulled up an incline out of the mine by cable hoist. Crushing and screening are done in a plant on the quarry floor, which consists basically of a 36 x 30 in. jaw crusher and 6 x 25 ft. trommel screen.

Hearth stone (up to 10-in. size) and blast furnace stone are sized through the revolving screen, and minus 3-in. fines are separated. Transport out of the quarry is by skip cars. Minus 3-in. stone is sent on to the fine grinding plant, and the two sizes of flux stone may be dumped directly into railroad cars. Hearth stone size was also sent up the inclines to feed the lime kiln prior to the time the 4 x 7 in. stone were fed, flow into the skip cars being regulated by a Jeffrey vibrating feeder from the crushing-screening plant. Five of ten hand-fired vertical lime kilns are still operated.

Stone for the Azbe kiln is dumped from the skip cars into a steel bin of 250-ton capacity. Cars on 36-in. gauge track are loaded from this bin and drawn by a single-drum Superior Lidgerwood-Mundy hoist up the incline to charge the kiln. Flow into the skip cars is regulated by a Jeffrey electric vibrating feeder which has 2¼-in. grate bars substituted for its pan in order to remove more fines and small stone pieces. This material is diverted on to a belt conveyor, delivering to the fine grinding stone plant. An average kiln charging car carries 7800 lb. of stone.

A separate coal bin pays out coal at the rate of 3730 lb. per skip car to charge the overhead coal bin. A West Virginia coal of 14,000 B.t.u. per lb. gross heat value is used. It is high-fusion point, low-ash coal and is sized from 2 to 3 in.

High capacity and low fuel consumption were principal objectives in installation of the newer kiln, but substantial reductions in labor costs per unit of production also have been achieved. Labor savings are, of course, of growing importance, and it therefore is of interest to compare costs for the new kiln with those for the five hand-fired kilns operating at the same plant.

The new kiln is operated by six men, two per 8-hr. shift. As a basis for comparison and using the period before October, 1953, during the period when production averaged 65 tons of lime per day with a fuel ratio of 5.4:1, and comparing production costs with those from the five old kilns which produced 60 tons of lime per day, using a combination of one cord of wood and two tons of coal per day as fuel, labor costs per ton of lime produced had been reduced by 53 percent and fuel costs by 26 percent for a total saving of 37 percent per ton of lime for labor and fuel costs.

In making a similar comparison, but using the figures available to us for the month of October, 1953, which shows an average production of 81.7 tons per day with a fuel ratio of 6.13:1, the reduction as compared to the months prior to October, 1953 was 46 percent for the combined fuel and labor costs, consisting of 63 percent for labor and 35 percent for fuel.

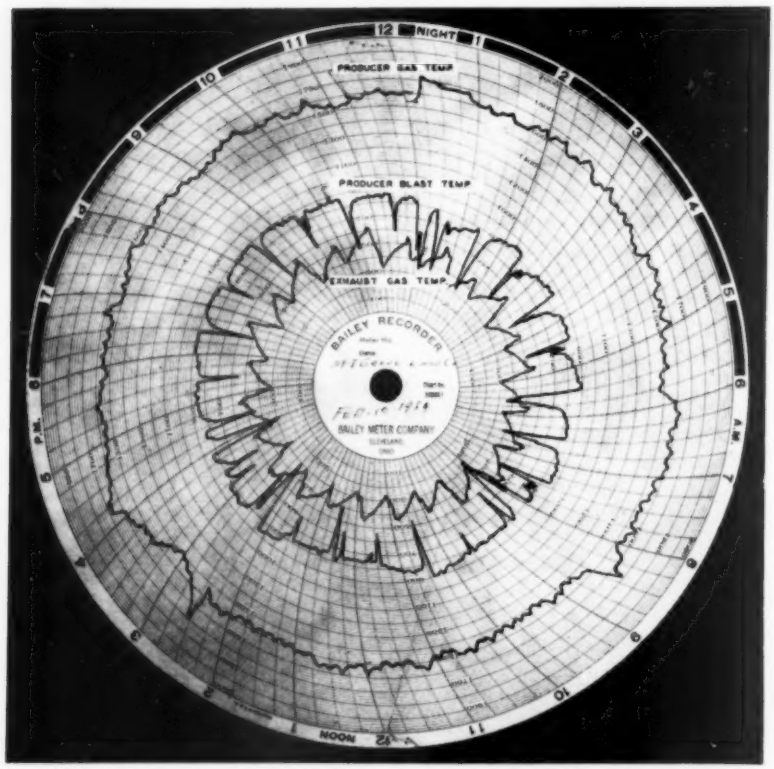
Thus, by improvements to production over a short period of time which resulted in an increase in output of 16.7 tons of lime per day for the new kiln, labor cost was cut 20 percent and fuel cost by 12.5 percent for a combined saving of 15 percent. (Comparative figures used in this paragraph and the two preceding ones were based on total output of the kilns. No allowance for unburned core was made as records of core were not being kept at that time).

When the Azbe kiln was first started up, production was approximately 30 tons of lime per day for the first months. As experience was gained, and certain changes made, production was brought up to the 50-ton mark in late 1952. The figures for average daily production and fuel ratio for the months of 1953 were as follows:

	PRODUCTION	FUEL RATIO
January	54	5.4:1
February	61	5.4:1
March	66	5.1:1
April	67	5.2:1
May (1st half)	Shutdown for repairs	
May (last half)	62	5.7:1
June (1st half)	Shutdown for repairs	
June (last half)	68	5.0:1
July	67	5.2:1
August	69	5.5:1
September	71	5.6:1

Production during the first part of October, 1953, was increased suddenly, and for consecutive days was 77.9, 80.2, 80.1, 78.5, 82.6, 78.1, 78.3, 80.2, 84.4, 86.0, 88.9, and 84.5 tons. For the remainder of October and November, before the installation of the finishing zone, production exceeded 80 t.p.d. average.

In this type of installation, the kiln and gas producer function like a single unit; the kiln contributes to optimum performance of the gas producer through the very hot, high CO_2 blast and the kiln, in turn, has the benefit of the rather substantial amount of recirculating gas entering through the gas producer. Instrumentation is provided governing the operation of both and these instruments



Kiln chart, showing temperature record of producer gas, producer blast, and exhaust gas

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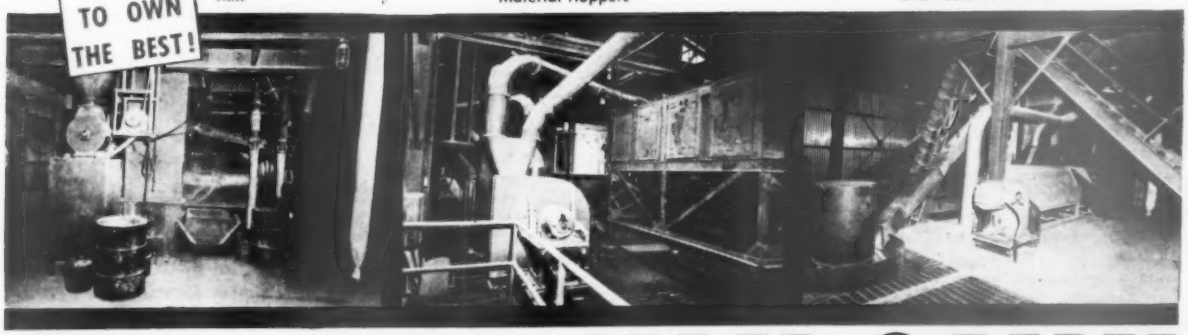

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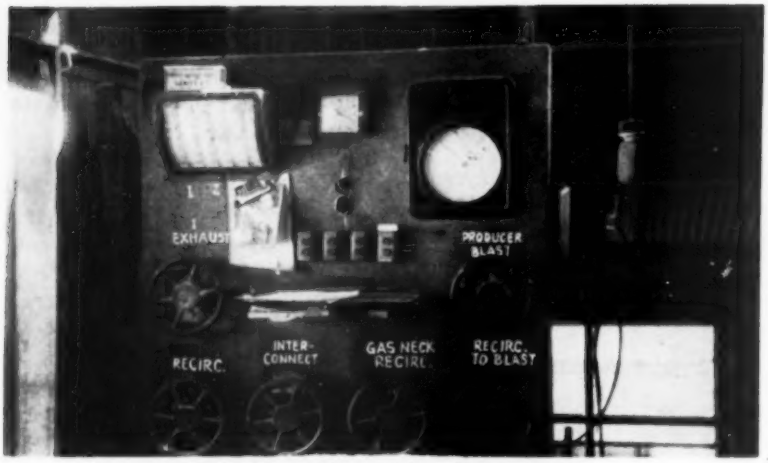


Instrument panel for new kiln and gas producer

are being used to advantage. A Bailey 3-pointer recorder keeps a continuous record of the producer gas temperature, recirculating gas temperature and the kiln exhaust gas temperature. Bailey instruments indicate, in water gauge pressure, the exhaust draft, hot zone draft, recirculating pressure and pressure of the air to be re-circulated through the gas producer. Pressure of the gas as it comes from the producer is measured, and also pressure of the producer blast. CO_2 readings are taken at 2-hr. intervals, usually after each draw, and adjustments made with damper intakes to a holding point of 13 percent CO_2 entering the producer.

The kiln, equipped with the finishing zone, has 80 center and side burner ports of relatively small size to improve gas distribution.

A number of factors have contributed to improve kiln performance. Certain changes to the contour within the kiln were made to minimize hangups and to create a slipping condition. These changes to a basic kiln design were needed because of the characteristics of the stone, and they have markedly reduced downtime.

Due to the tendency of breakage of the stone in conversion to lime and some spalling in the upper reaches of the kiln, it was found necessary to step up the exhaust draft to the unusually high figure of 7 in. w.g. in order to permit high capacity. It is anticipated that, with the finishing zone as installed, that the breakage will be reduced, which will loosen up the kiln; this will permit a lower draft or result in higher capacity.

The draw periods have been progressively shortened which has had much to do with maintenance of temperature control. Initially, lime was drawn at 3-hr. intervals. This was reduced to two hours and now has been cut to ½-hr. intervals.

The frequent draws tend to loosen the kiln and the drawing of the core into the finishing zone prevents the building up of temperature which would otherwise have the tendency to overburn the smaller pieces of lime. Frequent draws also rearrange the surfaces for more uniform exposure of heat. Due to the presence of some oversize stone, practice is to draw the lime with a small amount of core rather than to draw core-free lime that has already been burned, in order to produce a softer-burned lime of improved slaking properties. Core is pulverized by hammermills into agricultural lime.

Practice is to blow soot and carbon out of the side and center burners once each shift with high pressure air, and this is required probably twice as often when undersized stone is being burned in the kiln. Soot coats the stone and retards its calcination.

Another important control is to hold down the firing bed in the gas producer. The ash bed is not permitted to exceed 5-in. thickness and the fire is held to a thickness of 24-29 in. Coal is charged to a thickness of 6 in. over the fire. If the fuel bed is too high in the producer, excess ash and inefficiency results. Should the producer blast pressure exceed 3.8 in., practice is to shake the ashes to loosen the fuel bed.

Practice is to slow the fire at midnight each Saturday when the exhaust is closed off over Sunday, with no fuel added. Each Sunday the heavy carbon is cleaned off the gas burners.

The foregoing is mentioned to point out some of the practices followed in adjusting the kiln to changing conditions usually associated with the material fed, and to emphasize that close attention to details is necessary and productive in gaining top performance.

Changes to the kiln have been made which include a double-level firing system with finishing calcining zone, and a conversion arrangement whereby natural gas may be alternately used as fuel or in combination with producer gas. The area will soon have natural gas available so all the kilns will have an alternate fuel system.

The new hot zone system consists of extending the upper level of the calcining zone higher up in the kiln, followed by the "finishing zone" where calcination will terminate under lower temperature. It incorporates a double-level firing system with about two-thirds of the combustibles entering the kiln at the higher level and the balance in the finishing zone. Thus, there is a milder temperature in the lower zone where the gas is burned with a large amount of excess air which is highly preheated, and the arrangement is so that the material moves into the finishing zone before overheating begins. Temperature is several hundred degrees higher in the upper calcining zone but calcination is incomplete at that level, and termination is in a zone of lower CO_2 concentration (oxidation atmosphere) which requires a lower temperature for the same calcination rate.

This system is expected to increase production, produce a higher quality product, require less fuel and result in longer kiln runs between repairs. Less breakage of the lime from shrinkage as it cools is expected. In combination with complete conversion to slip operation, more frequent draws and a new method of mechanical drawing which will permit more ready loosening of the kiln bed, it is expected that capacity of the kiln will be increased considerably.

M. J. Grove Lime Co. was established in 1859 and has its headquarters at Lime Kiln, Md. The company has plants at Grove, Md.; Lime Kiln, Md.; Frederick, Md.; Middletown, Va. and Stephens City, Va., and produces masonry mortar, ready-mixed concrete, lime and stone products. It also handles building supplies, and is engaged in street, road and bridge construction.

Robert B. Crothers is president of the company, F. Grove White is vice-president and manager of Virginia operations with headquarters at Stephens City. Charles E. Bass is mining engineer and superintendent of the Stephens City plant; B. F. Gilbert is lime burning foreman; Elwood Mauck, lime shed foreman; and Robert Shifflet, quarry foreman.

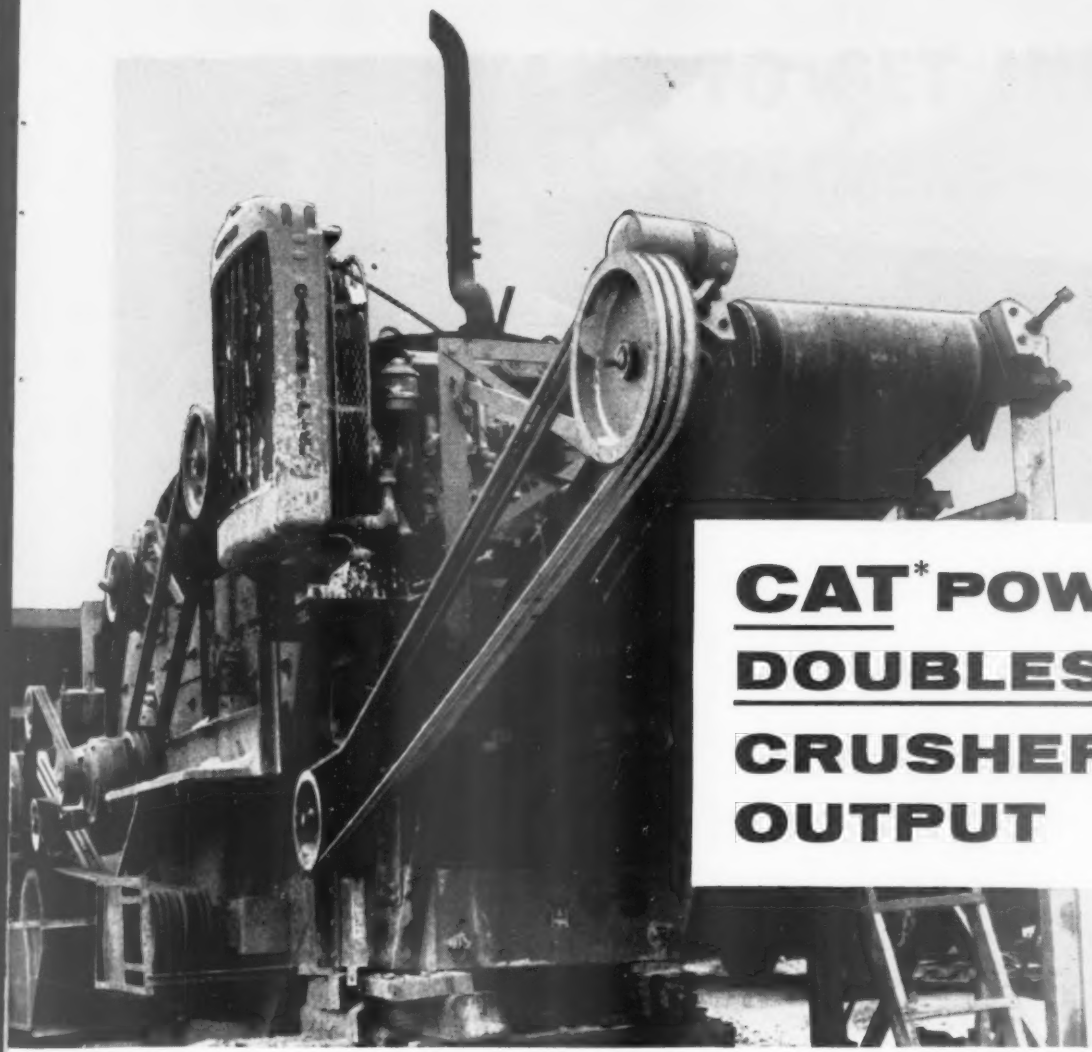
As this article goes to press we are advised by the Grove people that production is averaging 84 tons per day with a fuel ratio of 5.7:1 and core averaging 3 percent.

Slate Research

THE RESEARCH DEPARTMENT of Alfred University, Alfred, N. Y., is currently at work on experiments which, if successful, reportedly will open new markets for the operators of slate quarries. The laboratory staff, which is under the direction of Donald Dickens, is seeking a practical means for expanding or "bloating" slate, for use as a lightweight concrete aggregate, and for insulation purposes.

Company Dissolved

OKLAHOMA GRAVEL CO., Oklahoma City, Okla., was recently dissolved as a corporation and its assets transferred to Murphy & Perkins Ready Mixed Concrete Co., Oklahoma City.



CAT* POWER DOUBLES CRUSHER OUTPUT

WITH an engine of another make, this Cedarapids portable crusher produced just a little over half capacity. Since switching to a Caterpillar D337, Ervin Clark Construction Co. reports *full capacity* of 100 tons per hour on this job at Logan, Iowa. Also on the job are four other Caterpillar Engines and an HT4 Shovel.

Caterpillar Engines are honestly rated. You get every horsepower you pay for—*at the flywheel*, and not on an engineer's slide rule. This is vital to high output and efficient operation, because you can be sure you're getting the right engine for the job.

Ervin Clark, owner of Clark Construction Co., reports that he has never had any trouble with his Caterpillar Engines. They run cheaper and longer than his former power. He especially likes their ease of starting by means of a gasoline starting engine, which preconditions the diesel.

Long work life and low down time are built into every Caterpillar Engine by such features as wear-resisting aluminum-alloy bearings and pistons, "Hi-Electro" hardened crankshaft journals, and Caterpillar's famed precision workmanship. Especially important on dusty jobs around rock are Caterpillar's really *effective* engine filters and seals, designed to keep lubricants *in* and harmful grit *out*. And Caterpillar's special fuel-injection system means full and *foul-free* power on low-cost No. 2 furnace oil.

Your Caterpillar Dealer—who offers fast, skilled service and genuine factory parts—will help you select the right engine or electric set for *your* job. There are 12 sizes, up to 500 HP and 315 KW. Leading manufacturers can supply Caterpillar power with their crushers, shovels, compressors and other rock-working machinery. Be sure to specify Caterpillar when you order new equipment, or repower.

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

CATERPILLAR*

*Both Cat and Caterpillar are registered trademarks—®

SPECIFY CAT POWER FOR HIGH-PROFIT PERFORMANCE

Modern mill at asbestos plant in Lowell, Vt. Also may be seen dried ore storage building and conveyors between structures

More Efficient Mining and Modern Plant Double ASBESTOS Production

Ruberoid Co., Vermont Asbestos Division, with quarry near Lowell, Vt., constructs modern mill to process 10,000 tons of asbestos annually

By MARION L. BRIGGS

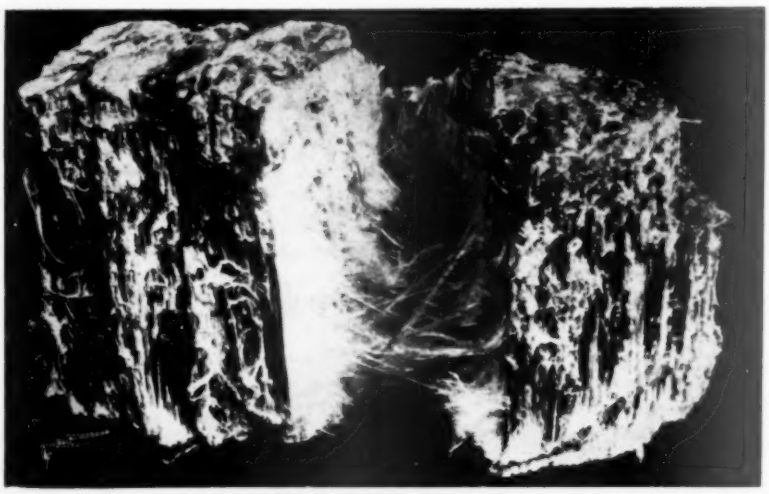
ONE OF THE MOST MODERN AND EFFICIENT asbestos mining plants in existence, producing 125 t.p.h. of raw ore and about 50,000 tons of asbestos fiber a year in round-the-clock operations, six days a week, is the Ruberoid Co. quarry in Lowell, north central Vermont. The erection of a new six-story mill and the introduction of a number of firsts to mining methods have greatly increased plant production and flexibility.

Located on 3360-ft.-high Belvidere Mountain, the plant is operated by the Vermont Asbestos Mines division of the company and produces 96 percent of the chrysolite, nonspinning, short-fiber asbestos in the United States. Its holdings extend over 2800 acres, equivalent to more than 50 times the size of Boston Common. Current operations are confined to the north slope of the mountain at 1050 ft., 1150 ft. and 1300 ft. levels.

When the Ruberoid Co. took over this open-face mine in 1936 from the Vermont Asbestos Corporation of America, the quarry was yielding only about 50 t.p.h. of raw ore and 10,000 tons of asbestos a year. Operations were on the south slope of the mountain in the town of Eden, and were relatively simple. Within three years, the original mine capacity was increased by the company to 100 t.p.h. by the installation of new milling equipment and the discovery, by accurate prospecting, of a better grade of ore, with longer asbestos fiber, on the north slope of the mountain.

The new source of ore was developed, and a 5000-ft. aerial cableway constructed over the mountain to take the rock to the original mill. When the second mine site gave evidence of extensive and suitable asbestos ore deposits, the company closed down the old mine, discontinued the use of the aerial tramway, and in 1949 constructed its present modern six-story mill with industry-innovating-equipment and features.

In construction, the mill is of structural steel, has a 65,000-sq. ft. floor area, concrete main floor, foundations and footings, and corrugated asbestos-cement sidings and roofing. It contains surplus capacity to allow for bypassing any machine temporarily



Sample of the "silk" asbestos fiber

SO YOU WANT TO GET INTO THE ASPHALT BUSINESS--

UNIVERSAL Speed Batch . . . push-button control asphalt plant

Two men can operate it — and neither needs to be highly skilled. You have centralized control over the entire plant with electric push-button and pilot control valves. Easy to operate, clearly labeled push-button controls eliminate guesswork and make it a simple matter for the operator to speed up the production cycle.

Minimum investment required — and operating costs are low. You can make a production run or one batch, change mixes as often as you need to with hardly any delay, dry only the exact amount of aggregate to be used. Maintenance cost is low, too, with all parts easy to inspect and adjust.

A high quality plant — Like all Universal equipment, the Speed Batch Model 2000 is quality engineered throughout. For example: drying drums are heavily insulated to retain heat and increase plant output; plant is highly portable with dryer, pugmill, dust collector and all power and controls on one sturdy frame — meets highway limitations; piping is simplified, with one connection each to Bitumen and fuel supply lines.

Get full information now — Yes, this is your plant, if you want to get into the profitable asphalt business without a heavy investment. See your Universal distributor or write today for an 8 page illustrated booklet on the Universal Speed Batch Model 2000 Asphalt plant. Write Universal Engineering Corporation, 617 C Ave., Cedar Rapids, Iowa.

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In Cedar Rapids Since 1906

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617 C Ave., Cedar Rapids, Iowa
A Subsidiary of Pettibone Mulliken Corporation, 4700 W. Division St. Chicago 51, Illinois

Left: One of the rotary core drills for proving deposits in the asbestos quarry. Right: Men at work with hand-operated compressed air drills preparing blast holes

out of operation. This bypassing, when necessary, in no way changes either the quality or the amount of the product.

Electric motors in the mill are interconnected in such a way to permit automatic starting and stopping. No bucket elevators are used. The mill building is heated in cold weather by means of hot air fed back from the drying ore, so that even at zero degrees the temperature is held between 60 and 70 deg. F.

All processing from the third-stage crushing of the asbestos ore is done in the mill. From a wet stockpile, with a capacity of 75,000 tons, the ore is reclaimed by a 24-in. tunnel belt conveyor, 250-ft. centers, that carries the rock up 45 ft. to the mill, where it discharges into two 7- x 60-ft. parallel-flow rotary dryers.

The innovation of outdoor stockpiling of wet ore by the Ruberoid Co. has the advantage of keeping about 250 men at work the year round, as operation of the plant can continue during low-temperature winter weather. Full-time employment at the plant means a livelihood to many Vermonters in surrounding towns, who come to work in company busses and get the highest average hourly wage in the area.

High Faces — Large Blasts

New to the mining industry, and economical, is the use this company makes of high faces and large blasts. Blast holes are drilled with Bucyrus-Erie 29T churn drills that average 2.40 f.p.h. The holes are 6½-in. openings, and are spaced 10 to 18 ft. along the face. Shots average about 30 holes and produce about 50,000 to 100,000 tons of rock each. The unusually good breakage and a yield of close to 5 tons per lb. of explosive are partly attributable to the seams of fiber in the asbestos ore. Primacord safety fuse is used with 75 and 60 percent gelatin dynamite.

At the 1300-ft. level of the quarry, where current operations are in progress, the ore body is about 3000 ft. long and from 400 to 800 ft. wide. Its surface slopes to the 1050-ft. level, and working of the mine goes on in approximately 100-ft. benches from the top level down, in order to get the desired blend of ore.

After blasting, rock too large to handle is reduced in size by workers using hand-operated compressed air LB 57 jackhammers with detachable bits, and Joy TM 49 drifters. In working on hard rock, carbide bits are used in the jackhammers. Secondary shots are detonated by line current, and about 200 to 300 are made simultaneously.

The recent purchase of two 3-cu. yd. Marion power shovels and one 7-cu. yd. shovel, the largest in New England, have speeded plant production. The big bucket lifts in one bite 7-cu. yd. of rock, weighing about 10 tons. All are powered by electricity.

Rear-dump 27 FD Euclid trucks, of 15-ton capacity, load from the piles of blasted ore, and carry it on short hauls to the primary crushers kept close to the working face. At the 1050-ft. level, the trucks discharge into a 40-ton steel hopper that feeds from a 15-ft. x 60-in. Kennedy-Van Saun pan feeder into a 48- x 60-in. Traylor primary jaw crusher. At the 1150-ft. level is a 36- x 42-in. primary jaw crusher.

The minus 6-in. product from the primary crusher at the 1050-ft. level moves along a belt conveyor to a 5½-ft. Symons cone crusher, and from the primary crusher at the 1150-ft. level, it is carried to a 4¼-ft. Symons cone crusher. From both cone crushers, the crushed ore is taken by a conveyor to the wet stockpile near the plant.

Collect Wet Dust From Dryers

An innovation in the mining industry, believed to be first employed at the Ruberoid plant, is the collection of wet dust from the dryers. In their circular air-jacketed, oil-fired combustion chambers, the free moisture in the asbestos ore is cut down from 5 to 6 percent to less than 0.5 percent. From the discharge ends of the dryers, two 17,000-c.f.m. fans suck the escaping air, steam and gas, and sweep it through two cyclone collectors 10 ft. in diameter into a 34,000-c.f.m. Orlon cloth bag dust filter. The cloth remains efficient for more than a year. Dampers with automatic controls keep the filter temperature from exceeding 240 deg. F. by letting the fans exhaust to atmosphere above this point, and strip heaters prevent the gaseous materials in the filter from dropping below the condensation point.

The dried ore leaving the dryers is carried on belt conveyors to a 5½-ft. Symons short-head cone crusher, which reduces it to 1-in. minus size. They are then carried on to a pair of 3-ft. Symons short-head cone crushers for further reduction to ½-in. minus size. In dry weather, it is possible to have the ore bypass the dryers and go direct to the cone crushers.

From the 3-ft. short-head cone crusher, the ½-in. minus product moves along a 24-in. conveyor into a storage building with a 10,000-ton capacity. On a parallel belt conveyor, controlled by a Syntron vibrating feeder, the material moves to the processing mill, where it discharges onto a pair of identical flows. Noteworthy is the remote control governing the flow of ore to the feed conveyor by means of a Merrick Weightometer with a rheostat regulator and recording meter.

Removing the Fiber

Some of the "silk of the mineral kingdom" is aspirated by air suction from sloping tables oscillating slowly and reached before the ore enters the fiberizing machines. More of the asbestos fiber is broken loose from the ore as it goes through the fiberizers, where the rock and hard fiber are hurled against breaker plates. The loosened fiber in the machines is removed by a rapid downcurrent of air to screens with ¼ and ⅛-in. openings, from which it is aspirated through piping into collectors.

After leaving the fiberizing machines, the asbestos ore goes over screens with ¼- and ⅛-in. openings. The plus ¼-in. ore moves on to tail-

1 Yd. Jaeger Load-Plus working between tracks and stockpile

This loader almost bites its tail

Turns in a radius of only 14 ft. . . .
with instant reverse and at 50% higher speed

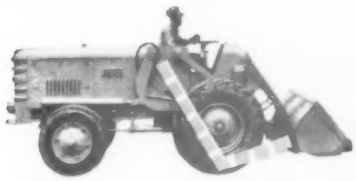
When you figure how many times a day a loader backs and turns, you see how a faster reversing, shorter turning machine like this Jaeger Load-Plus gets its high production.

The shift of a directional lever, without any shifting of speed gears, puts it into 50% higher reverse speed. Its power-steered rear axle whirls it in a tight turn of only 14' radius at both outside rear tire and bucket corner — *2' 5" less than its overall length and 3' to 5' less than other leading loaders need to turn in.*

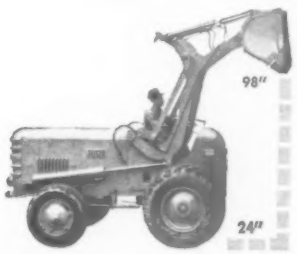
From there a Jaeger Load-Plus has 5 transmission speeds to take it up to 28.2 mph in reverse or up to 18.7 mph forward. Between these 5 speeds its torque converter gives you an infinite number of gear ratios for smooth acceleration, and permits instant gear shifting wthout risk of shock load on the power train.

Your operator can choose the most efficient speed for any condition, steer with his fingertips when in mud, snow or soft ground, work with the certainty of an always balanced machine and the sure traction of front driving wheels always located at the fulcrum of the load.

Have your Jaeger distributor show you a Load-Plus at work — or ask us for Catalog L100-3.



Load increases traction because it's centered on the driven front wheels. Hoisting crowds bucket 13" deeper into pile.



8'2" dumping clearance with 24" reach, in only 4½ seconds from "carry" position. Finger-tip hydraulic controls.

THE JAEGER MACHINE COMPANY

603 Dublin Avenue, Columbus 16, Ohio

AIR COMPRESSORS • PUMPS • CONCRETE MIXERS • TRUCK MIXERS • PAVING MACHINES

"Shaking table" screen where fine sand is removed from the crushed rock with the light, loose fiber being picked up by air suction through the inverted funnel-shaped pipe into the collectors

ings, since it contains less than 0.3 percent asbestos and is not considered worth further processing. Confined within these tailings are any magnetite or wood remaining in the ore.

The minus ¼-in. ore continues to a screen with a $\frac{1}{16}$-in. perforated plate and two impact mills with swing hammers that hit the falling rock. On a Nordberg vertical screen, fine sand is removed. Finally, the ore travels over four Ruberoid screens with $\frac{1}{16}$-in. perforations. From the discharge ends of these screens, any remaining ore goes to tailings, and the asbestos fiber is aspirated.

In three separate groups, the aspirated asbestos fiber, gathered on the plus ¼-in., plus ⅛-in. and plus $\frac{1}{16}$-in. screens, is carried to cyclone collectors that deliver it through rotary valves to belt conveyors. From these conveyors, the fiber is discharged onto horizontal graders operated by variable speed motors. Then it goes to cleaning and grading screens with aspirating hoods at their exit ends. Screw conveyors send the aspirated fiber into collecting bins, and as many as 12 grades can be obtained at one time. From the bins, the fiber moves by gravity to bagging machines.

Unusual Packing Methods

The unusually clean fiber obtained undergoes a new method of paper bag packing instituted by the Ruberoid Co. More efficient and economical than the former burlap bag pack, it is an innovation in the asbestos mining industry. The fiber is fluffed up and compression-packed in 100-lb. paper bags. The packer compresses the fiber about 50 percent to a weight of 50 to 60 lb. per cu. ft. No harm results to the asbestos fiber from this process, and warehouse capacity is considerably increased.

Effective dust control is another feature that improves the plant. All harmful dust and offensive odor is removed by suction and bag-filtering. An American Wheelbrator 300,000-c.f.m. bag filter is connected to all equipment in the mill and located at the top of the building.

The entire plant uses about 16 million kw. hr. of electricity a year, which is generated about 15 miles from the quarry. The power consumed on the basis of ore produced is 14.1 kw. per ton of ore. One third of the electric power required is needed to take care of the 300,000 c.f.m. of air used. Six delta-connected transformers outside the mill building compose a bank that receives 33,000 volts as it comes in, and there are more than 300 motors of from 1 to 200 hp. caring for the plant's power load of 3300 hp.

Laboratory and Shops

An invaluable asset at this modern plant is a complete laboratory equipped to make any necessary tests, including those not relating to core analysis or fiber control. And there is also a fully equipped machine and maintenance shop housed on the grounds.

Use of tailings is made to pave the Mountain road leading to the plant. And the State of Vermont purchases these tailings at a minimal cost for use in its road construction, as these pea-size chips make an excellent nonskid surface.

The Belvedere Mountain quarry is less than 80 miles south of the nearest asbestos mine operated in Quebec, Canada. And its serpentine rock masses closely resemble those in the Canadian area, probably dating back to the same post-Ordovician period.

Looking toward the future, the Ruberoid plant keeps up accurate and efficient prospecting operations. Hollow diamond core drills bring up ore samples from a depth of 1000 ft. The Magnetometer and the airplane are used in locating ore bodies.

Certain grades of fiber produced at the mine are not usable in the company's products. The Ruberoid Co. sells this portion of their production on the open market and buys other grades in order to keep its building materials factories supplied. In this way, it is able to maintain an optimum level of production at the Vermont quarry, and also keep supplied a large number of customers for its asbestos products. The company operates on the principle that nothing deteriorates faster than a mine not in continuous operation.

Aggregate Retention in Asphalt Surface Treatments

IN A RECENT ISSUE of *Technical Information Digest*, published by the Municipal and Airport Division of the American Road Builders' Association, is a summary of an article written by F. J. Benson, research engineer, and Bob. M. Gallaway, assistant research engineer, Texas A. & M. College, on a study of some variables affecting retention of aggregate by asphalt surface treatments.

The experimental work on this project was grouped in the following problems: (1) Effect of variation in quantity of aggregate and asphaltic material applied on the quantity of aggregate retained; (2) effect of variations in grading on quantity of aggregate retained; (3) effect of the elapsed time between application of asphalt and application of aggregate upon adhesion of the aggregate; (4) effect of moisture in aggregate upon adhesion; (5) effect of dust on the aggregate upon adhesion; (6) effect of the "wet dusty" condition of aggregate upon adhesion; and (7) effect of type of asphaltic material used upon the tenacity with which the aggregate is held.

According to the report, the experiments verified that the proper quantity of a given aggregate for a one-course surface treatment can be determined from the quantity required to cover one square yard one stone thick, plus an allowance of 10 percent for spreading inaccuracy.

Perlite Sound-Color Film

THE PERLITE INSTITUTE has announced the release of a new 26-min., sound-color film on perlite. The 16-mm. film depicts how perlite is mined and processed and, in step-by-step sequences, shows how several perlite plaster and concrete constructions should be erected. The final portion of the film shows the use of lightweight perlite insulating concrete in the construction of roof decks.

The movie, which is designed primarily for showing to architects, engineers, contractors and others familiar with technical problems in the construction industry, was written and photographed by Richard S. Funk of the Perlite Institute staff, and is narrated by George Bryan, well-known C.B.S. radio and television announcer. It is available through any of the 49 member companies of the institute. Additional information can be obtained from the Perlite Institute, 10 E. 40th St., New York 16, N. Y.

6 MANITOWOCS Serve H. E. FLETCHER CO., Granite Quarry

ONE GOOD MACHINE deserves another—and so it has been at the H. E. FLETCHER CO., one of the nation's leading quarries. Since buying their first Manitowoc, 5 more went on the job at their huge West Chelmsford, Mass. quarry—3 Model 3900's, 1 Model 3000 and 1 Model 2000, where they have been replacing stationary derricks.

Equipped with 90' booms, they handle everything that comes their way—simply, accurately, safely. Stone breakage is held to a minimum, because of the precise control of a Manitowoc. Ready maneuverability permits them to be used all over the quarry and surrounding area.

If you've never tried a Manitowoc, you'll be amazed at the difference in performance a Manitowoc will provide—a difference that can be seen and measured in faster operating cycles; greater productivity; less maintenance and down time; and far easier operation.

And remember, in a Manitowoc you can get the TORQUE CONVERTER, pioneered by Manitowoc for shovel operation—plus many other exclusive features and advantages no other machine offers. No wonder most everyone is switching to mighty Manitowocs.

MANITOWOC ENGINEERING CORP., MANITOWOC, WIS.

MANITOWOC

SHOVELS 1-5 YD. Speedcrane CRANES 18-100 TON

"I was promised delivery today,

but now I'm told you've no stock of one rope and only half enough of another. This delay is costing me money and plenty of it. From now on it's Roebling for me!"

* * *

You can count on prompt and full delivery of Roebling wire rope. Your nearest Roebling office and distributor will help you choose the rope that will perform and stand up best in the quarries. And you'll get what you want, when you want it — straight from nearby warehouse stock.

ROEBLING (CF)

Subsidiary of The Colorado Fuel and Iron Corporation

JOHN A. ROEBLING'S SONS CORPORATION, TRENTON 2, N. J.

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Two kilns following each other, one 2½- x 22-ft., and the other, 4- x 18-ft., expand perlite raw material into cellular, lightweight aggregate

Two Kilns In Series Produce Perlite

Perlite Industries Co., operates modern plant for manufacture of products used in oil well cementing, plaster and soil conditioning

By HUBERT C. PERSONS*

TEXAS WAS ONE OF THE FEW PLACES in 1952 where the value of expanded perlite in bags showed an increase, according to U. S. Bureau of Mines reports. Figures for 1953 are not yet available. The 1952 record is in line with the enthusiasm behind Perlite Industries' modern perlite "popping" plant at Terminal, Texas. This plant is located about ten miles west of Midland, Texas on U. S. Highway 80. Wright E. Cowden, owner of the operation and Patrick C. Lipscomb, general manager, believe that there is a large and practically unexploited market for expanded perlite. They believe that scientific research is finding many new uses for perlite and that with reasonable promotion effort the demand for this material will continue to increase for many years. In justification of their optimism they point to the varied applications of perlite already recognized in addition to its use as a lightweight concrete aggregate.

Strategic Location

Mr. Cowden, whose interests include oil and cattle, observed the increasing use of perlite for oil well cementing and decided that the vicinity of Midland, an oil well supply center, would be a strategic location for a perlite plant. He commissioned Mr. Lipscomb, a mechanical engineer, to design and build a perlite plant. Work was started in 1950. The plant, with an hourly capacity of 150 sacks (4-cu. ft.) of perlite, is located on a site formerly part of an Army Air Force depot. The general office is in the McClintock Building in Midland.

Crude perlite from New Mexico or Colorado is delivered to a railroad siding in box cars holding 60 tons. The ore is unloaded into dump trucks with a 12-cu. ft. Model HA Hough Payloader.

Two Kilns Are Used

The raw perlite is dumped from the trucks into a screened hopper from which a bucket conveyor carries it to a 2000-lb. surge bin above a Syntron feeder. The feeder moves the raw ore into a 2½- x 22-ft. rotary kiln turning at a speed of 8 r.p.m. The kiln temperature at the feed end is 800 deg. F., but as the ore moves toward the discharge end of the kiln, the temperature increases to approximately 1050 deg. before it is discharged into a second and shorter kiln. This is 4- x 18-ft. rotating at 10 r.p.m. Maximum heat in the second kiln is 1800 deg. Under this heat the ore expands like popcorn to several times its original size. It is discharged at about 1200 deg. F. on to a drag chain conveyor which cools the expanded perlite.

After being screened and graded for size, the expanded perlite is carried by bucket elevator to tall sacking hoppers from which it flows by gravity into 4-cu. ft. sacks.

Two Sizes For Oil Fields

The perlite sold for oil well cementing is packed in two different sizes. The more coarse, ranging from ⅜ in. down to $\frac{1}{16}$ in., carries the brand name "Signal Light Red." The finer, ranges from $\frac{3}{16}$ in. down. This is branded as "Signal Light Green."

Perlite Industries also makes a plaster aggregate sold under the trade name "Perlite Pete," a granular insulation marketed under the same trade mark, and a soil conditioner.

S. L. Rust is superintendent.

*Industrial public relations consultant, Chicago, Ill., and for many years manager, Public Relations Bureau, Portland Cement Association.

Tuffy® Draglines

Reduce Rope Costs — Sometimes as much as 40%

Consistently Longer Service! That's the story we hear from people who use Tuffy Drags! Whether you keep records of dragline yardage, number of days in service or total cost per yard, you'll find Tuffy Dragline will often beat past records by as much as 40%! Like hundreds of others, you'll rate Tuffy tops for yardage . . . service . . . economy!

Tuffy Dragline Is Specially Constructed to give you a flexible rope that hugs the drum when casting! What's more, Tuffy Dragline is made to provide maximum abrasive resistance for longest possible service!

Make The Tuffy Test!

1—Install Tuffy Dragline
2—Keep complete service records
3—Compare with Rope you are now using.

By Test you will find that Tuffy moves *more* material at a *lower cost* to you.

Tuffy Scraper Rope

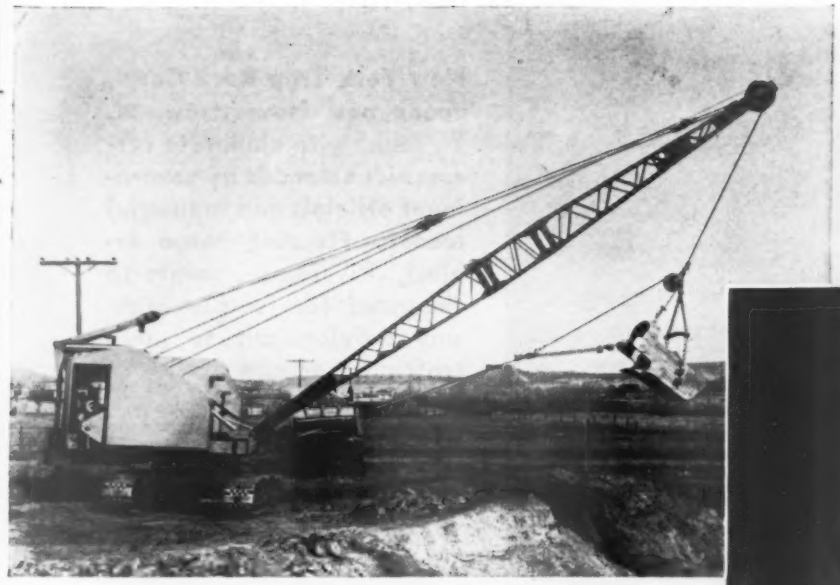
Balanced flexibility provided to withstand sharp bends over small drums and sheaves. Stiff enough to resist looping and kinking when slack.

Tuffy Slings

9-part machine-braided wire fabric! Will not materially damage fabric when kinked or knotted! Favorite with those that demand safety and lower costs!

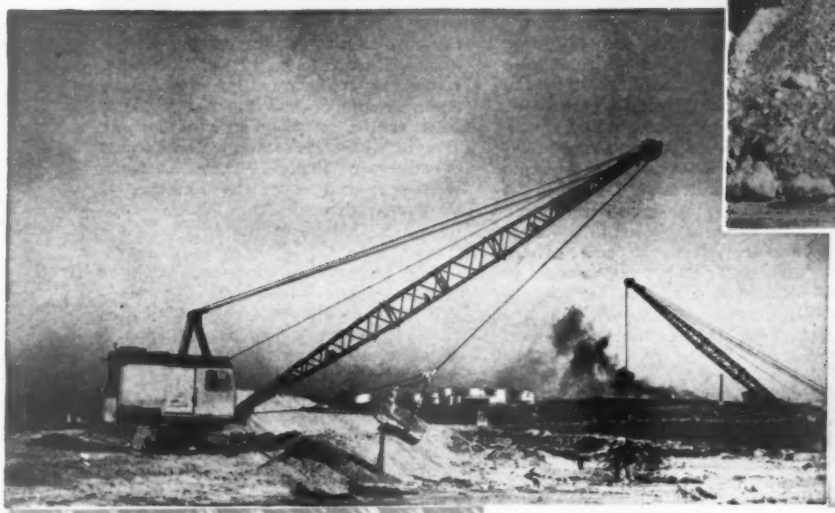
Tuffy Dozer Rope

Combined with proper cut-off procedure Tuffy Dozer Rope will greatly increase your service life—cuts downtime. Available in 150' lengths—½" and 9/16".



Aggregate material is where you find it. Dragging it up over the side of a pit exposes the dragline rope to plenty of abrasive wear. One of the features of TUFFY DRAGLINE is an outer construction which *resists abrasive action* to the utmost.

Here an accommodating glacial stream piled sand and gravel high above ground—so high, in fact, a dragline is needed to keep the big dipper from undercutting and bringing slides down upon itself. On locations like this, the flexibility of Tuffy Dragline makes for ease in casting the bucket when loading and unloading.



On dam sites, the flexibility, abrasive resistance and high tensile strength of TUFFY DRAGLINE makes it capable of handling more yardage than rope constructions not designed for this special purpose.

Tuffy Hoist Line

Designed to give you the utmost in service! Tuffy Hoist Line is tailor-made for use on OVERHEAD, STIFF LEG and MOBILE CRANES, CLAMSHELLS and DERRICKS.

union Wire Rope corporation

2156 Manchester Ave. Kansas City 26, Mo.

Specialists in High Carbon Wire, Wire Rope and Braided Wire Fabric

Shown above is the Riverama, a modern version of the old-time show boat, in which is housed an educational exhibit, delineating the history of the lower Hudson River Valley, its communities and industry

New York Trap Rock Corp., opens new Haverstraw, N. Y., plant with elaborate ceremonies attended by government officials and industrial leaders. Floating barge exhibit, Riverama, points to the need for further highway development to meet traffic needs

By L. AMACHER

Dedicate Million Dollar Stone Plant

NEW YORK TRAP ROCK CORP.'S unique floating exhibit, the Riverama, and the company's new $1,000,000 stone-crushing plant at Haverstraw, N. Y., were twin features of a special dedication ceremony held May 10 at Haverstraw, and attended by over 1000 prominent government, civic, business and industry leaders.

Guest speakers at the dedication included such distinguished figures as James A. Farley, former postmaster general of the United States; William D. Ogden of the New York Times; Bertram D. Tallamy, superintendent, New York State Department of Public Works, and chairman, New York Thruway Authority; Robert A. Lopez, regional manager, New York State Department of Commerce; and Harry Schuler, mayor of Haverstraw. Among the company personnel who appeared on the program were William P. Foss, Jr., chairman of the board; William P. Foss, III, president; and John Kringel, superintendent of the Haverstraw plant.

The principal address was delivered by Mr. Tallamy, who outlined the work the state has launched in highway and road construction. He expressed his belief that this broad program would eventually lead New York State to the head of the list in providing modern transportation facilities.

New Plant and Barge Program

The demands of highway, street and other construction programs in New York have grown rapidly since the war. It was to meet those demands that New York Trap Rock Corp. invested $1,000,000 in its new Haverstraw facilities and embarked on a $1,500,000 barge-building program. The company, whose four plants produced over 4,000,000 tons of stone products last year, is one of the country's leading suppliers of stone for concrete use. About 90 percent of its production goes into the construction and repair of streets, roads and highways. The material used for this purpose ranges in size from 2½-in. stone down to pulverized limestone which is used as a binder in the construction of street surfaces. These stone materials, which are carried in Trap Rock's fleet of 176 barges, reportedly account for one-third of the total tonnage moving on the Hudson River.

Hudson River Valley Exhibits

The Riverama, which was a feature of the dedication ceremonies, houses a large number of historical, scenic, geological and industrial displays covering the lower Hudson River Valley. The purpose of this floating exhibit was said to be two-fold: To point up the need for further highway development and programming, and to demonstrate the part that Trap Rock plays in road-building and in community life along the Hudson.

The exhibits are housed in one of New York Trap Rock's barges which was rebuilt for the purpose. The exterior of the Riverama, which is 130 ft. long and 30 ft. wide, presents a colorful scene reminiscent of show boats of earlier years, complete with flying pennants and a canopied lounge deck.

An illuminated, 22-ft. scenic and historic map, portraying events and landmarks along the lower Hudson River from Poughkeepsie to Manhattan, introduces visitors to the Riverama. Also on display is a 120-sq. ft. relief map of the valley area, with cross sections showing the various rock strata as they exist today at Poughkeepsie, Haverstraw and George Washington Bridge. These sections were prepared under the direction of geological experts from Vassar College and College of the City of New York.

The importance of adequate highway, road and street systems to modern living is the subject of another of the displays in the Riverama. Included with this is a model community in a 150-sq. ft. diorama, demonstrating with moving models modern transportation of all kinds, including a miniature train system, an airport, an arterial highway modeled on the Thruway, streets and a harbor. Miniature cars, airplanes and harbor vessels are used to complete the scene.

Several displays illustrate the uses of Trap Rock's stone products, ranging from 5-ton pieces of rip rap used for seawall protection, down to fine screenings and dust used as a binder to surface roads and streets. Working miniature models and large panel photographs illustrate the production of these stone materials in Trap Rock plants. The complete production story is depicted—how rock is removed from the mountain, trucked to the plant, crushed, screened, washed, mixed, and loaded onto barges and moved down the river.

Another illustrated display tells the history of American roads, with corresponding transportation, from the "corduroy" roads of the pre-civil war period to our smooth, banked highways of today. Modern road and street construction is illustrated by actual sections from the New York State Thruway and from Park Avenue, New York City.

A section of plank road, dating from Revolutionary times and known as "George Washington's Road" is also a part of the featured road construction display. The planks used in this exhibit were originally built into an alternate route between West Point and Morristown, N. J., in 1778, in accordance with plans drawn up by Robert Erskine, General Washington's military engineer. The Orange Turnpike, the regular route between the two towns, was nearer the Hudson River and vulnerable to British attack. The planks were discovered at the bottom of a lake in northern Tuxedo, N. Y., in the course of constructing the New York State Thruway.

These and other exhibits present to the public, not only a fundamental background of the history and geology of the valley area, and a working knowledge of the production of crushed stone and its use in modern road construction, but also bring to the public's attention the inadequacy of our present highway system and the vital need for building the necessary and proper kind and number of roads. Among the facts pointed out are the following: The nation's highways were designed to carry 20,000,000 vehicles but are today carrying approximately 54,000,000, or more than twice the volume intended; in 1953, there were more new cars built in Detroit than there were new highways to accommodate them, even if the cars were parked bumper to bumper; poor, out-

Artist sketches in detail on 22-ft. scenic and historic map, which is the opening display that introduces visitors to the Riverama

worn roads and highways cost the motorist more than the cost of building the kind and number of roads needed — the motorist pays an estimated $200 *extra* for higher insurance rates, increased tire, gas, and oil costs, and larger repair bills, in addition to the cost of expensive stops and starts, and time lost in traffic jams.

As the Riverama unfolds its story to the public through its photographs, maps, models and other illustrated displays, another story, though not visually depicted, can be "read between the lines" — the story of an enterprising company with far-sightedness, ingenuity and a sense of civic pride and duty. New York Trap Rock Corp. is to be congratulated, not only on its industrial expansions and achievements, but also on its endeavor in promoting good community relations.

The Riverama will be exhibited during the summer at various Hudson River communities, as well as at certain locations in Metropolitan New York and around the Long Island Sound area.

Workmen installing featured display in the Riverama. Installation of exhibits involved the trucking and loading aboard the rebuilt barge of several dozen separate displays. Deliveries had to be timed to the tides which have a 7-ft. rise and fall in the bay

Expanded Shale Meeting

EXPANDED SHALE INSTITUTE held its semi-annual convention at the Kentucky Hotel, Louisville, Ky., April 20 to 23, with 22 in attendance, not counting the ladies.

President S. Carl Smithwick, in his opening remarks, gave an historical sketch concerning Expanded Shale Institute, and stressed the importance that this 2-year-old organization has assumed. The work program of E.S.I. is very heavy and must be spilt among 24 member company representatives who comprise the directorate and their delegated alternates. Following the reading of the minutes by George Bickel, reports from A. R. Waters, treasurer, and Frank G. Erskine, managing director, were presented.

Slayton Jenner of the Federal Civil Defense Administration for Atomic Tests, gave an interesting address about the atomic test program accompanied by motion pictures of the Yucca Flats, Nev., A-bomb tests of March 17, 1953.

On the second day of the convention, reports were presented by the chairmen of the following committees: By-laws and Rules, Publication and Promotion, Technical Problems, Budget and Dues, Membership, Nominating, and Eligibility. Several panel discussions were held. A. R. Waters presided on the panel to discuss, "Production Technology," along with Alex McVoy, W. W. Allen, Jr., and Phil Comstock. E. A. Peterson presided at the "Promotion Techniques" panel discussion with George Kulhavy and S. Carl Smithwick. Cedric Willson, Dallas, Texas presented the report of the Technical Problems Committee.

New officers elected for the ensuing year are: president, W. W. Allen, Hydraulic-Press Brick Co., St. Louis, Mo.; vice-president, Alex McVoy, Texas Industries, Dallas, Texas; secretary, George Bickel, Featherlite Co., Austin, Texas; and treasurer, A. R. Waters, Carter-Waters Corp., Kansas City, Mo.

Installed cost

reduced 25% by

prestressing with Type PS

American Strand

● The prestressed members of this concrete bridge in Pennsylvania cost about 25% less, installed, than conventional built-in-place members of equivalent strength. These beams were pretensioned with Type PS American Strand to give them extra strength and durability at lower cost.

Maybe you don't use strand in your prestressed concrete. You may prefer a method that utilizes wire instead of strand. You may prefer post-tensioning to pretensioning. You may prefer site-casting to factory fabrication. Whatever type of prestressing you decide upon, you can get an American *Super-Tens* Wire or Type PS American Strand that suits your job. These products have been thoroughly tested and proved *in service* on hundreds of prestressed concrete structures.

On these many jobs, our engineers have learned a great deal about all types of prestressing. They'll be glad to help you on your next job. Just send the coupon.

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UNITED STATES STEEL EXPORT COMPANY, NEW YORK

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UNITED STATES STEEL

Labor Relations

(Continued from page 41)

convinced of the fact that the union represented a majority of the employes in an appropriate unit; and that he would like for the drivers to continue to work under the same conditions that existed before the union entered the picture. Immediately following this speech, the union was advised of respondent's refusal to bargain, and on the same day the union representative again demanded a contract, which was refused for the reason previously given. All eight of the truck drivers holding union cards then left the plant, and that afternoon a picket line was established. On June 8, 1951, respondents, notified each striking employe by letter that he would be replaced if he did not return to work.

N.L.R.B. Finding

"The board found that the union represented a majority of respondents' truck drivers in an appropriate bargaining unit, and rejected respondents' contention that they in good faith had entertained a doubt as to the union's claim of majority representation, since, at neither the May 26th nor the June 6th meeting with the union did respondents question the union's majority status or avail themselves of the union's offer to prove its majority. The board thereby held that, by refusing to bargain with the union on June 6th and thereafter, the respondents had violated Section 8(a)-(5) of the National Labor Relations Act, 29 U.S.C., Section 151 et seq. The board also found that, since the drivers had gone on strike because of respondent's refusal to bargain, the strike was an unfair-labor-practice strike. The board characterized respondents' letter of June 8th as threatening the strikers with loss of their jobs unless they abandoned their strike, and concluded that respondents had thereby interfered with, restrained, and coerced their employes, in violation of Section 8(a)(1) of the Act. Finally, the board found that the respondents had also violated Section 8 (a)(1) by interrogating two employes concerning their membership in the union. The order of the board directed the respondents to offer reinstatement, upon application, of those strikers, who had not already been reinstated, and to make them whole for any loss of pay, if any, they might suffer before being reinstated. The order also required the respondents to bargain with the union upon request."

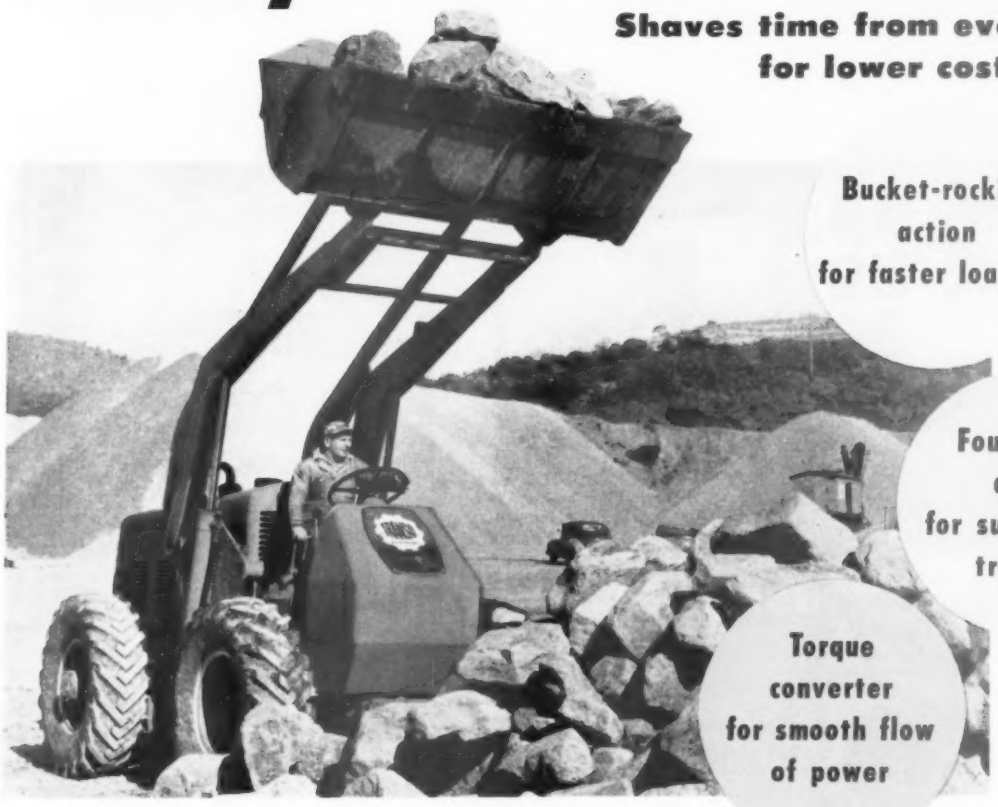
* * * * * * * *

"The evidence shows that the union represented a majority of respondents' truck drivers. The request to bargain was not ambiguous because, on each occasion, the union representative informed respondents that the union represented a majority of respondents' truck drivers, and offered to prove this representation. The president of the respondents, in his speech

(Continued on page 91)

Always on the Double!

Shaves time from every cycle, for lower costs



Bucket-rocking action for faster loading

Four-wheel drive for sure-footed traction

Torque converter for smooth flow of power

LE ROI-TRANSO TLF-150 Front-end Loader

YES, sir, a 1½-yard Le Roi-Transo TLF-150 lets you move more load — faster — at lower cost — without tire spin or undue engine strain — in sand, mud, snow, or rocky terrain. It's engineered that way.

But that's only part of the Le Roi-Transo story. There are other important advantages.

Take maneuverability, for example. The TLF-150 has power steering, short (84") wheelbase, short over-all length, and a small turning radius — so it's easy to handle. Planetary-type, reversing transmission cuts reversing time 85%. The low carrying position of the bucket gives you especially good vision and provides an extra margin of safety.

And when it comes to maintenance, the TLF-150 is built to save you time and money. Engine, transmission, clutches, axle assembly, and torque converter are grouped compactly and are easy to get at.

There are even more reasons why a Le Roi-Transo TLF-150 more than pays its way on material-handling jobs. See for yourself — have your Le Roi-Transo distributor arrange a demonstration.

Write for latest bulletin.

LE ROI COMPANY

A Subsidiary of Westinghouse Air Brake Co.
TRANSO DIVISION
MILWAUKEE 14, WISCONSIN
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Plants: Milwaukee • Cleveland — Greenwich — Dunkirk, Ohio • Coldwater, Mich.

Our house? Built with wire rope?

Not only yours, Mr. Brown, but millions of others too.

A miracle of the postwar years has been the construction of more than 7-million new dwelling units. Accomplishment of this tremendous task has called for "muscles of steel"—rugged wire rope that is a vital factor in mining the ore, quarrying the stone and bringing out the timber that comprise the basic components of every house and building—large or small.

Supplying these "muscles of steel" to the giant that is American industry is our big job here at Wickwire—a job we've been doing well for over half a century.

In the mines . . . the quarries . . . the logging camps—and wherever wire rope is used, they'll tell you that for utmost safety, longer life and most economical service you can always count on the quality and strength that is built into Wickwire Rope.

A YELLOW TRIANGLE ON THE REEL IDENTIFIES WICKWIRE ROPE

THE COLORADO FUEL AND IRON CORPORATION—Abilene (Tex.) • Denver
Houston • Odessa (Tex.) • Phoenix • Salt Lake City • Tulsa
PACIFIC COAST DIVISION—Los Angeles • Oakland
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Chicago • Detroit • Emlenton (Pa.) • New Orleans • New York • Philadelphia

WICKWIRE ROPE
CF&I PRODUCT OF WICKWIRE SPENCER STEEL DIVISION THE COLORADO FUEL AND IRON CORPORATION

1873

Labor Relations

(Continued from page 88)

prior to the strike, specifically referred to the drivers as being union members; and it is apparent that respondents were aware of the existence of the unit that had been designated by the union. Since the strike was the result of respondents' unlawful refusal to bargain, it was clearly an unfair-labor-practice strike, and the respondents were under a duty to reinstate all the striking employes.

"We think there was substantial evidence in the record, considered as a whole, to support the findings of the Board; and the petition for enforcement is granted.

"Enforced."

City Pavements — Interstate Commerce

An action in the U. S. District Court, Eastern District of Tennessee, by the new Secretary of Labor (Mitchell) against the Emulsified Asphalt Products Co., Knoxville, Tenn., is of interest because it throws a trifle more light on the application of the Fair Labor Standards Act to strictly local producers of highway paving material — in this case a cold asphalt mix. The plaintiff (Secretary of Labor) alleged the producer "is engaged in the use of material shipped to its place of business in Knoxville, from outside the State for the manufacture of asphalt products which are sold to the State of Tennessee, to the City of Knoxville, and to the Louisville and Nashville R.R.; that the purchasers have used and are using asphalt products to maintain, repair and reconstruct roads and rights-of-way and other facilities which are instrumentalities of interstate commerce, and that defendant's 11 employes (clerks, watchmen, truck drivers, pump men and laborers) accordingly are engaged in interstate commerce and in the production of goods for interstate commerce."

The defendant admitted that those of its employes who receive and handle material shipped from outside the State are engaged in activities which by their nature place such employes under the law; but it denied that the employes enumerated were.

The Court's decision, handed down April 23, 1954, specified by name various streets and highways where the material was used. The defendant endeavored to prove that these were not "avenues of interstate commerce" but city streets and secondary roads. In the words of the Court's decision: "In stipulation filed February 18, 1954, it is agreed that B. C. Barker, director, Department of Public Service, City of Knoxville, Tenn., if called as a witness, would have testified in substance that none of defendant's product has been used in connection with the main thoroughfares of the City of Knoxville, and that such as has been used by the City has been used on secondary streets. In his oral testimony given at the trial, he stated that he classified all roads and streets as secondary which were not designated as State highways, or as U. S. highways.

"It is further stipulated that George C. Bearden, commissioner of highways and public works of Knox County, Tenn., if called as a witness, would testify in substance that Knox County uses products of defendant on County roads, but that none of the County roads on which such products are used was designed or built with the idea of sustaining heavy truck hauling such as trucks used by national trucking companies in interstate trucking; also, that insofar as possible on those roads on which defendant's product is used interstate trucking is excluded for the reason that the roads will not sustain the heavy loads that are carried by interstate traffic.

"It is stipulated further, however, that he would testify that some of the County roads do accommodate interstate truck traffic; that Paper Mill Road (one of those named specifically) has been designated as a truck route, but that the Knox County highway system was designed and built to take care of rural traffic coming into Knoxville, was not designed for heavy interstate and inter-city traffic, and that such traffic is not desirable.

"It is the contention of the defendant that, although the roads named in the stipulation are used regularly by interstate vehicular traffic, it is not the intention of the local agencies for them to be so used; that they were built for local traffic and not for interstate traffic and are therefore not instrumentalities of interstate commerce. In other words, defendant says that the character of the instrumentality is determined by the purpose for which it was built, with whose money it was built, how it was labelled, and how it was constructed.

"Plaintiff contends that the factors contended for by the defendant in determining whether or not roads listed in paragraph 2 of the stipulation and which under the stipulation, are used regularly by interstate vehicular traffic, are not determinative of the character of the instrumentality, but that the use to which they are put does determine whether or not they are interstate commerce instrumentalities, or local instrumentalities.

Coverage of Act

"It is the opinion of the Court that the roads listed in paragraph 2 of the stipulation are instrumentalities of interstate commerce and that since it is agreed that the product furnished by the defendant is used to maintain, patch, and repair these roads the employes who produce these materials are engaged in the production of goods for interstate commerce and are within the coverage of the Act and that their employer is subject to the Act.

"The Supreme Court of the United States recently had before it cases which in the opinion of the Court force the conclusion herein reached. See, Thomas v. Hempt Bros., 345 U.S.

19; Alstate Construction Co. v. Durkin, 345 U.S. 13, 11; also Mabee et al. v. White Plains Pub. Co., 327 U.S. 179; wherein the de minimum rule is rejected; and, Overstreet v. North Shore Corp., 318 U.S. 125.

Removing Clay

(Continued from page 65)

screen are hand picked and discarded as previously mentioned. The remainder of the gravel falls to a 4-ft. Symons short head cone crusher. The discharge from the cone falls to a 24-in. belt conveyor that unloads to a 24-in. return belt conveyor with the

L. E. Gardner, engineer, left and T. J. McMillan, plant superintendent

crushed product sent to a 4- x 10-ft. Robins three-deck screen, operated wet. The plus on the top deck during normal operations returns to the 4-ft. cone, but if desired, this product can be sent to a 3-ft. Symons cone alongside the 4-ft. cone crusher. Material from this cone crusher falls to the same belt conveyor serving the larger crusher. Crushed gravel is not kept separate from the un-crushed material. The fines (minus ¼-in.) from the lower deck of all four screens is sent to second Eagle spiral that produces the finished concrete sand. Intermediate sizes from the four screens fall to the storage compartments below. The plant produces material that meets specifications for North and South Carolina, the U. S. Navy, and A.S.T.M. requirements.

Storage compartments are provided with level-indicators. When a compartment gets full one of four signal lights atop the plant light up. The lights are so located that the superintendent can see them from the office. The lights save the supervisory personnel countless steps for otherwise they would have to go almost to the top of the plant to learn what was causing the stoppage.

Most of the plant output is shipped over the rails of the Atlantic Coast Line, but truck bins are available for local haulage. An unusual feature in this connection is that all roads used by the commercial haulers to and in the plant are paved. A pair of Howe scales are provided. All haulage from the plant is by non-company owned trucks.

Fresh water for the plant is delivered to a pool via a 9400-ft. canal with two Fairbanks Morse pumps, operating in series, delivering 7000 g.p.m. an additional 2500 ft. through a 16-in. spiral steel pipe. Each pump is powered with a 350-hp. motor. All electric power is purchased from the Carolina Power & Light Co. at 2300 volts. Some current is used at that voltage and at 440 volts.

Tailings from the plant are flumed a short distance to a swamp of considerable area. This section has been diked at its perimeter. Material flows in at one end and clear water finds an outlet at the opposite end. The swamp is sufficiently large to provide adequate tailing storage for a considerable time.

Under the eight-bin compartments is a 153-ft. long concrete tunnel in which a 36-in. Goodyear reclaiming belt conveyor rides on Continental Gin Co. idlers. There are 16 radial gates serving this belt conveyor so that blending to the belt can be practiced. The reclaiming belt conveyor delivers to a 4- x 12-ft. Tyler, two-deck rinsing screen. The top deck is a wear-taker. Fines from the lower deck are wasted. A flop-gate by-passes the rinsing screen when sand is being loaded. After passing the Tyler screen, the material falls to an inclined 36-in. cross belt conveyor that elevates the material to the car loading tower. Material on

Above: Liquid cyclone installation at top of plant. Waste chute from second sorting station is in the center foreground with three sand screws between decks of station. Below: Close-up of liquid cyclones on top of plant

Cedarapids Built by IOWA

UNITIZED PLANT

HERE'S the way to outproduce your competition, handle *any* aggregate producing job that comes along . . . and do it at the low production costs that mean a tidy profit on every job.

The Cedarapids Unitized Plant shown above produced four products at a time . . . lime dust from 1/8″ down, 3/4″ Class A road rock, 3/8″ minus material and 3/8″ to 3/4″ aggregate . . . at a rate of 210 tons per hour!

To meet specifications for other jobs, the basic primary crushing, scalping, secondary crushing and bin units can be combined in dozens of different ways to produce any size products in volumes up to 250 tons per hour or more in quarry operations. And you get real economy in operating and maintenance costs.

Your Cedarapids distributor can give you *all* the reasons why Unitized Plants are your best bet for beating competition. *Call on him today.*

USE THESE 4 BASIC UNITS IN ANY COMBINATION

PORTABLE PRIMARY CRUSHER reduces raw material to a size readily handled by the scalping unit or secondary crushing unit. Single and Twin Jaw Crusher or Double Impeller Impact Breaker units available in a wide range of sizes.

SCALPING UNITS, consisting of a single or twin jaw crusher and horizontal scalping screen, remove excess fines and dirt, and perform a crushing operation to reduce the circulating load for the secondary crushing unit. Choice of sizes.

SECONDARY CRUSHING UNITS are complete crushing and screening plants designed for high volume production of fine crushed products. Three types of crushers are available . . . roll, twin jaw or hammermill . . . to suit your job requirements.

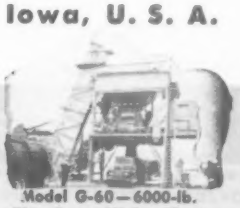
BIN UNITS may be portable storage and loading bins, as shown above, or wet or dry screening, storage and loading units.

IOWA MANUFACTURING COMPANY Cedar Rapids, Iowa, U. S. A.


Master Bituminous Mixing Plant


Vibratory Soil Compactor


Motorized Head Pulley


Model G-60—6000-lb. Bituminous Mixing Plant

this belt is weighed continuously by a Sintering Machinery Co. Transportometer. Located near the top end of this belt conveyor is the inspector's laboratory, permitting visual inspection of the products being loaded. In the test room is a Gilson screen and a Tyler Ro-tap. A Connecticut "direct-call" phone system in the laboratory also serves the office, the truck loading bins, shop, and plant.

Unusual Stockpiling System

Ground storage areas parallel a standard gauge switch track that is below the plant. A very unusual stockpiling system is used, consisting of a 50-ton steel hopper mounted at one end of a flat car. Under this hopper is a short feeder belt that serves the main 24-in. stacker belt mounted on a swiveled boom. A 12-ton Vulcan diesel locomotive spots the travelling stockpiler under the loading tower serving the car loading section. At that time the boom of the stacker is parallel to the long axis of the flat car. When the hopper is full, the stockpiler travels down grade by gravity to the stockpiling site. After the unit has stopped, small stiff-leg braces are put in place on the side of the flatcar nearest the ground storage piles. The stacker boom is then swung at right angles to the car. The stiff-legs above mentioned are designed to counter-effect the weight of the stacker boom when swung into the unloading position. The swing of the boom is through a roller chain and wire rope drive. Power for the travelling stockpiler is obtained from a 25 kw. Caterpillar diesel-electric unit mounted under the stacker boom. The stockpiler, with two men, can deliver 150 t.p.h. to the storage piles. Reclaiming from ground stored material is by a Model 6, Northwest crane that swings a 1¾-cu. yd. Owens bucket, and an older Link Belt Speedcrane. In addition to the Vulcan locomotive, that is also used for shifting cars, there is available an American car spotter.

The main office of the Becker County Sand & Gravel Co. is at Crosby, Minn. E. W. Hallett is president and M. W. Richards, secretary. The southeastern division at Cheraw, S. C., comprising the plants previously mentioned, has the following officers: E. A. Mullen, executive vice-president and general manager; M. C. Evans, vice-president in charge of production; W. E. Williams, assistant secretary and sales manager, and L. E. Gardner, engineer. T. J. McMillan is superintendent of the Marlboro plant.

Cement Plant for Iceland

ICELAND'S FIRST CEMENT PLANT, now under construction at Akranes, on Faxa Floi Bay, reportedly will have an annual capacity of 50,000 tons. The plant will be powered from the Andakil River.

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STANDARD BUILDING MATERIAL CO., South St. Paul, Minn., was recently granted a permit to open a sand and gravel plant at South St. Paul.

Rocky's Notes

(Continued from page 39)

belonged. The Teamsters tried to compel these employes to change their affiliation to its own group. They were defeated in these efforts because the courageous little group of 30 employes took their case to a hearing before a National Labor Relations Board examiner on a charge that the employer was seeking to dominate their choice of union representation. The Teamsters' union had to back down, or be accused of violating the Taft-Hartley Act, which Beck hates so furiously!

Typical Membership Drives!

In an editorial, *Wall Street Journal* sums up some of the highlights of the investigation of Teamster union activities in Minneapolis, Minn., by a Congressional committee as follows (in part): "One Teamster local had never held an election of officers. Employes were dragooned into membership without even knowing about it. All these things were done in the name of labor peace. One witness said that in order to prevent a strike against his company, he paid initiation fees into the Teamsters for his 100-odd employes but the employes didn't like the idea and protested about having to pay dues. Finally an arrangement was concluded whereby the workers would not pay dues but the company would pay a monthly assessment to a 'health and welfare fund.'

"Another witness said that a picket line was thrown about his place because the Teamsters wanted to organize his workers though none of his workers had ever expressed a desire to join the union. This witness also paid an 'initiation fee' and put his employes into the union without their knowing it. The union official, Tony Schullo, secretary-treasurer of Local 648, said he 'organized' this way because the employes were guilty of an 'unfair labor practice.' The following passages between Mr. Schullo and Representative Hoffman disclosed the Teamster official's reasoning:

"Mr. Hoffman: What employes were unfair to your organization (union)?

"Mr. Schullo: The ones that didn't belong.

"Mr. Hoffman: Anyone that doesn't belong to your organization is unfair?

"Mr. Schullo: That's right.

"And at another time Representative Osmers sought explanation of how members can get into a union without knowing they are members.

"Mr. Osmers: ... As I understand it, it is possible for an employe within the jurisdiction of your union to be a member of your union without even knowing it? It is possible that an employer could . . . pay the man's dues and the employe could be a dues-paying member of your union without even knowing?

"Mr. Schullo: That's possible.

"Mr. Osmers: It is possible that you have a number of members in your union who are members of your

union against their own will . . . ?

"Mr. Schullo: That's right.

"Thus the testimony discloses an unwarranted economic power to close down a man's business by throwing a picket line about his place. But it shows also how twisted is the concept of the right of workers to organize for their mutual benefit. The business men who feared the picket line actually bartered away the organizing rights of their workers without so much as asking them about it. There was coercion and collusion and together the Teamster officials and management rode roughshod over the people the labor laws were drawn mainly to protect."

Touchy About Others' Strikes!

The International headquarters usually disclaims responsibility for obvious racketeering. Moreover, it is quite indignant when strikes and work stoppages by other labor groups interfere with their own members' pay checks. The union has filed a suit for $51,000,000 for alleged losses to its members as a result of the long strike of stevedores on the New York waterfront. The suit is against the union and its officers as well as the employers. Yet the methods employed in the strike of the New York longshoresmen, which received so much notoriety that the state governments of New York and New Jersey were compelled to step into the picture, bear a close resemblance to the situation in Kansas City, Mo., last season, as described by George W. Garrett, president of the Stewart Sand and Material Co., at the conventions last February. Here is an extract:

"In the area about Kansas City were several large government projects. Construction on these projects was urgent and some on a cost plus basis. The unions soon found that almost any type of loafing, inefficiency, featherbedding and nefarious methods would be tolerated. This caused inefficiency of the grossest type. Estimates of U. S. officers in charge indicated some 10 to 20 percent efficiency among some crafts. On these jobs the truck drivers began their push. Strikes were called. The power of the truck drivers unions was demonstrated time and again. They dominated the entire labor field.

"The leader of the truck drivers was one of Dave Beck's protegees. He became this after a rapid rise to power in Kansas City area. He was ruthless. He had only big tough union agents. He hired ex-pugilists and armed them with six guns, made legal by permits issued by local politicians in offices. The methods used to enforce demands had similarity to the Spanish Inquisition. Black jacks, short length chains, guns and lots of profanity were used promiscuously. The truck drivers would move en masse to a job where they wanted to raid other unions and use clubs, etc., to run the others off. The power of the leader was great. He was a big man in unions."

New Stone Plant

(Continued from page 58)

Works slurry pump, with an 8-in. suction and 6-in. discharge, delivers to a disposal area. The pump is powered with a 50-hp. Reliance motor.

All crushers and operating units are controlled by a switch-man in a centrally located tower. All power is 220 volt, 3 phase, 60 cycle and is purchased. Fresh water is obtained from two 6-in. Allis-Chalmers direct-connected centrifugal pumps that deliver from 87-ft. deep wells alongside the plant. All conveyors were assembled in the shops of Maule Industries, Inc., using Robins idlers for the most part. The plant was designed by Sam Allen, chief engineer and was built by the company.

Block Plant

Two Bessers in the block plant have a capacity of 16,000 units per 10 hr. Block are open or weather-cured for 24 hr. under cover, 14 days wet curing outside, and a total of 28 days storage outside before using. Intraplant transportation is done with two Clark platform truck tractors and one Erickson unit. Concrete for the block machines is weigh-batched, using Butler equipment. Bulk cement is delivered to the plant via trucks. Portland cement from Puerto Rico is shipped by boat to Ft. Everglades where unloading facilities are available.

After undercover curing for 24-hr., the block are hauled to the outside curing section where they are piled nine-block high in a rather compact and solid pile that is 32-block wide and several times that long. Two Stearns rubber-tired yard hoists do the stacking. Yard space is available for three of these large stacks of block, and each pile is served by three equally spaced paved runways to deliver the block from the under-cover area to each pile. All materials from the crushed stone plant and the block

Crane handles pile-driver type drill rig in partially under-water quarry

plant are delivered to customers by trucks as no railroad serves the area.

Aggregates used are pea rock and coral sands processed at the Prospect plant. The pea stone is transported by belt conveyor to the bins over the Butler batcher via the previously mentioned reclaiming tunnel. Sand is trucked to a small steel hopper serving this belt.

Ready-Mixed Concrete

The ready-mixed concrete batching plant at Wilton Manor is relatively close to an inhabited area so the company built a 1200 ft. long concrete block wall with vertical reinforcements to separate its operation from the rest of the area. The wall is nine blocks high with a cast-in-place lintel and a poured concrete foundation. It makes a very pleasing dividing line. Batching at Wilton Manor is handled by two Butler installations; one for the aggregates and one for the portland cement. The latter can be delivered in bulk by trucks or by rail as the plant is along the tracks of the Florida East Coast railroad.

Aggregates from the Prospect plant are trucked to the ready-mixed concrete plant, and can be ground-stored or delivered to a steel hopper serving a belt conveyor to the bins over the weigh batcher. Under the steel hopper is a short, flat-running feeder belt that serves the main belt. The hopper also is provided with an electrical vibrator to expedite its unloading. Ground-stored material is handled by a Bay City clamshell unit.

F. S. Davidson is superintendent of the Prospect plant; Marion Forsythe is quarry foreman; O. P. Smith, crushing foreman, and Charles Brown, block plant foreman. Paul A. McElhattan is branch manager at Wilton Manor, and Al Pagett is yard foreman in charge of the ready-mixed concrete operations.

Officers of Maule Industries, Inc., are: J. Bradley Streit, chairman of the board; J. H. Buchanan, president; M. F. Pafford, executive vice-president; F. K. Foster, vice-president in charge of sales; F. Paul Anderson, vice-president in charge of materials control; Fred W. Hooper is in charge of operations; Sam Allen, chief engineer; and Howard Losey, concrete technologist.

Adds New Cement Silo

PENN-DIXIE CEMENT CORP., New York, N. Y., is building a 210,000-bbl. cement-storage silo at its Kingsport, Tenn., plant. The silo consists of fourteen 32-ft.-dia. bins, with self-cleaning steel conical hopper bottoms. MacDonald Engineering Co., Chicago, Ill., was awarded the contract for the design and construction of the silo, including the furnishing and erection of conveying machinery, dust collection and electrical work.

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KINGMAN SAND & GRAVEL CO., Kingman, Kan., was recently incorporated with an authorized capital of $10,000. Myron L. Gilbert is the resident agent.

INFORMATION

You can obtain catalogs listed on these pages by merely checking and mailing the coupon below

TO HELP YOU MEET TODAY'S PROBLEMS AND TO MAKE PLANS FOR TOMORROW

1 AGGLOMERATED FLUXES—The Lincoln Electric Co. has issued a reprint of a paper given by L. K. Stringham, Chief Engineer of the Lincoln Electric Co., before a Fall meeting of the American Welding Society. The paper is entitled "New Development in Fluxes for Automatic Welding and Hard Surfacing."

2 AIR COMPRESSORS—Joy Manufacturing Co. has issued a 36-page Bulletin A-72 describing and illustrating Series 100, class WN-114 heavy-duty air compressors for industry. Construction and operation information is included.

3 AIR-TYPE BURNERS—Hauck Manufacturing Co. has announced Catalog 413 describing and illustrating the line of Series 620-P vari-pressure, low pressure air type burners for oil or combination oil and gas. Dimensions and capacities are given.

4 ALLOY STEELS—Climax Molybdenum Co. has published a 208-page, paper-bound book entitled "Alloy Steels Pay Off," describing the changes in economic factors affecting alloy steels as a class. Case histories and references are given.

5 ANTI-RUST PAINT—Speco, Inc. has announced a catalog sheet, No. L-8826, describing Rustrem anti-rust paint.

6 BELT CONVEYOR CARRIER—Stephens-Adamson Manufacturing Co. has announced Bulletin 554 describing and illustrating the Model SP-745 belt conveyor carrier.

7 BOTTOM-DUMP TRACTOR—General Motors Corp., Euclid Div., has released Catalog 251 describing and illustrating the model TDT, 17-cu. yd., bottom-dump tractor. Conversion to scraper application is described, and specifications, typical performance figures, and individual design features are also given.

8 CALCIUM CHLORIDE FOR CONCRETE—The Dow Chemical Co. has issued a 10-page booklet entitled "Better Concrete Faster," describing the addition of calcium chloride to concrete mixes. Charts and graphs are utilized.

9 CARRIER TRUCKS—Clark Equipment Co., Industrial Truck Div., has issued a bulletin entitled "Ross Carriers Move Materials at Minimum Cost," describing and illustrating the line of carriers for various applications.

10 CEMENT COLORS—J. Lee Smith Co., Inc. has issued a four-page booklet showing actual samples of lime-proof colors available for mortar, cement, concrete and stucco. Also included are the formula used and mixing instructions.

11 CHEMICALLY-SETTING CEMENT—The Robinson Clay Product Co. has announced a revised bulletin describing Staminite Acid-Proof Cement, and giving application instructions.

12 CONCRETE BATCHERS—Cimco has released Forms 7 and 8, a specification sheet with on-the-job photographs on the "B" Series concrete mixing "Twin Bins," and literature entitled "Mix Your Own Concrete" describing the Twin Bin line of concrete batchers, respectively.

13 CONTROL MOTORS—Minneapolis-Honeywell Regulator Co., Industrial Div., has published Catalog 8203 covering its line of industrial control motors and motorized valves. Included are specifications, and data on the use of control motors with globe, adjustable port, butterfly valves, or combinations.

14 CRANES—The Thew Shovel Co. has released a 20-page catalog describing and illustrating the heavy-duty Lorain Moto-Cranes and self-propelled cranes in the "524" series. Detailed design and construction views, and on-the-job photographs are included, and a section is devoted to the hydraulic coupling power take-off.

15 CRANE-SHOVEL—American Hoist & Derrick Co. has brought out catalog No. 700-G-24 describing the American 750, 1½-cu. yd. shovel, 35-ton crane. Action photographs and specifications are given.

16 DENSITY METER—Sierra Industrial Instrument Co. has published a circular describing the Densi-O-Meter, a density measuring instrument for slurries, etc. Diagrams and applications are given.

17 DIESELS—Cummins Engine Co. has brought out Vol. VIII No. 3 of its external house organ, "The Dependable Diesel," describing and illustrating typical applications utilizing diesel power.

18 DIESEL ELECTRIC SETS — Caterpillar Tractor Co. has issued Form 30658, entitled "Power," explaining the use of diesel electric sets in various types of business and industry. Typical application photographs are also given.

19 DUST CONTROL—Rees Blow Pipe Manufacturing Co., Inc. has issued Bulletin 29 describing and illustrating the all steel, cloth tube Dust Arrestor. Construction features are described and standard sizes and dimensions are given.

20 ENGINE AIR REQUIREMENTS—Cummins Engine Co., Inc. has issued Bulletin 16 entitled "Air For Your Engine," describing the air requirements for internal combustion engines, and what to do about them. An air cleaner maintenance check-off sheet is included.

21 EXPANDED SLAG AGGREGATE—The Gary Slag Corp. has published a booklet entitled "Garylite Expanded Slag Aggregate," describing its uses for concrete masonry, precast products and lightweight concrete. A fire resistance rating table and heat transmission table are given.

22 GEARED MOTORS—Belgian Electric Sales Corp. has brought out Catalog CC-14A describing and illustrating the ACEC-SADI line of geared motors built to NEMA specifications. Dimensions, operating characteristics, photographs and diagrams are included.

23 GRINDING—Denver Equipment Co. has prepared a comparative flowsheet, No. M7-F29, on the initial and operating costs as well as tonnage of single-stage and two-stage grinding.

24 HARD-FACING ALLOYS—Crobalt, Inc. has announced Bulletin 102 describing Crobalite hard-facing alloys. Typical applications and advantages are listed.

25 HARDSURFACING—Rankin Manufacturing Co. has published a "Hardsurfacing Comparison Chart" for Ranite welding materials. Hardness tables, approximate melting points, and the heats and temper colors of steels are listed.

26 HOSE COUPLING—Titeflex, Inc. has issued a 16-page booklet entitled "Titeflex Quick-Seal Coupling," describing the construction and advantages of the coupling. Pressure, materials and size tables are included, and coupling accessories are described.

27 INSTRUMENTATION — Minneapolis-Honeywell Regulator Co., Industrial Div., has published Vol. 7, No. 2 of "Instrumentation," describing and illustrating the role of instrumentation in modern industry.

28 JAW CRUSHERS—Pioneer Engineering Works, Inc. has released a 48-page booklet on the line of overhead eccentric jaw crushers and the 170 series stationary primary plants. Photographs, drawings and tables are given.

29 LUBRICATION—Fuller Manufacturing Co. has released a folder giving "Lubrication Recommendations" for its transmissions. Included is a list of transmissions by model, with the lubricant capacity of each.

30 MOTORPUMPS—Ingersoll-Rand Co. has published Form 7123 describing motorpumps and how they operate. Selection data and various factors such as quantity, pressure, friction losses and head, which must be considered in selection, are given. Typical installation views are included.

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31 **MOTOR SCRAPERS**—Allis-Chalmers Manufacturing Co., Tractor Div., has announced two catalogs, No. MS-452 which covers the TS-300 and TW-300 motor scrapers, and No. MS-453 covering Models TS-200 and TR-200 motor scrapers. Specifications and in-the-field photographs are included.

32 **MULTIPLE V-BELTS**—Goodyear Tire & Rubber Co. has issued a brochure containing engineering and design data on multiple v-belts. Selection data and horsepower rating, standard size and pitch length, and groove dimension tables are included.

33 **PILLOW BLOCK**—Link-Belt Co. has released Folder 2517 on the Series JPS 200 ball bearing pillow block. Included are dimensions, load ratings, advantages and illustrations.

34 **POWER LINKAGE-CONTROL**—Twin Disc Clutch Co. has released Vol. XVI No. 1 of "Production Road," describing the trend toward modern portable aggregate plants; the adaptability of torque converters to drilling rigs; fluid drives for power linkage; and hydraulic torque converters for heavy-duty trucks.

35 **POWER TRANSMISSION EQUIPMENT**—Lovejoy Flexible Coupling Co. has issued a 24-page catalog on power transmission equipment. Ratings, dimensions, representative applications and engineering drawings are given.

36 **PROCESSING MACHINERY**—Traylor Engineering & Manufacturing Co. has brought out Bulletin 1115 describing and illustrating rotary kilns, coolers, dryers, and crushing machinery. Typical installations are illustrated.

37 **RADIATION DETECTORS**—Minneapolis-Honeywell Regulator Co., Industrial Div., has brought out Catalog 9301 covering the four types of Radiamatic radiation detectors for measuring temperatures from 125 to 7000 F. Included are specifications and examples of typical applications.

38 **REFRACTORIES**—Harbison-Walker Refractories Co. has brought out an eight-page bulletin describing two fireclay refractories; Coleman XX, for high duty service, and Coleman, for intermediate duty service. Charts are included showing spalling resistance, load test results, and thermal expansion.

39 **ROCK BOLTING**—Ingersoll-Rand Co. has prepared Form 4155 giving rock bolting procedures and techniques, and briefly describing a line of equipment for this application.

40 **ROOFING TILE**—Empire Tile Machinery and Supply Corp. has issued literature describing and illustrating automatic roof tile machines, and Empire concrete roofing tile. Instructions for applying the tile is also available.

41 **SCREW CONVEYORS**—Continental Gin Co., Industrial Div., announced Data Book ID-541 on various sizes and types of screw conveyors. Engineering data, photographs, line drawings, dimensions, and typical applications are included.

42 **SINTERING PROCESS**—Dwight-Lloyd, Inc., Division of Sintering Machinery Corp., has announced Bulletin 151 describing its sintering process for lightweight aggregate and its advantages. A typical sintering plant operation is also described.

43 **SMALL BOILERS**—Cleaver-Brooks Co. has released Bulletin AD-134 introducing the "CB" line of small boilers available in 15 to 40 hp. for heating and processing. Illustrations, descriptions, drawings and specifications are given.

44 **SPEED REDUCERS**—W. A. Jones Foundry & Machine Co. has released a 160-page catalog, No. 100, describing the line of Herringbone gear speed reducers, ranging from 1 to 1950 hp.

45 **STEAM PLANTS**—Bituminous Coal Research, Inc. has published the third in the "Aids to Industry" series, booklet No. 500-470 entitled "Economical Operation of the Small Steam Plant." It gives aid in achieving the best operation with existing equipment, and covers plants up to 300-hp. ratings. Research data is included. The booklet may be obtained at a cost of 50¢ per copy by writing the company at 2609 First National Bank Bldg., Pittsburgh 22, Penn.

46 **TESTING SIEVES**—Newark Wire Cloth Co. has published a bulletin covering the line of standard testing sieves, market grade testing sieves, and testing sieve shaker. Specifications are included.

47 **TORQUE LIMITERS**—Morse Chain Co. has prepared an eight-page illustrated catalog, No. C14-54, describing adjustable slip-clutch torque limiters for machinery drives. Design and operation data is given as well as specification tables, descriptions of specialized adaptations, and typical applications.

48 **TRACTION WHEEL ASSEMBLIES**—Athey Products Corp. has brought out Form 1010 describing and illustrating typical applications, utilizing Forged-Trak wheels for hauling on rough terrain. Details and specifications are included.

49 **TRACTOR**—Caterpillar Tractor Co. has issued Form 31041, a broadside on the 150-hp. Cat DW15 tractor, including photographs and cutaways of the engine, transmission and clutch. Specifications and suggestions for properly matching the tractor with a scraper or wagon are given.

50 **TRACTOR ATTACHMENTS**—Hyster Co. has issued Form No. 1305 entitled "Nine Profitable Minutes for Contractors," describing the use of attachments on new or used tractors. Case studies and action photographs are included.

51 **TRACTOR ATTACHMENTS**—Caterpillar Tractor Co. has released Form 31016 describing the advantages gained through the use of its attachments for track and wheel type tractors and motor graders.

52 **TRUCK-MIXER UNIT**—Cook Bros. Equipment Co. has announced a six-page folder, illustrating and describing the "M-310" single passenger, cab-beside-engine truck and Challenge truck mixer units. Weight breakdown for front and rear axle is included.

53 **TRUCK MIXERS**—Blaw-Knox Co. has issued Bulletin 2455 describing and illustrating Model "M" 5½- and 6½-cu. yd. Hi-Boy truck mixers and agitators.

54 **V-BELTS**—The B. F. Goodrich Co., Industrial Products Div., has released an eight-page catalog on Grommet V-belts in standard and high capacity constructions. Horsepower rating tables, cutaway drawings, and specifications are given.

55 **VERMICULITE CONSTRUCTION**—Vermiculite Institute has issued two booklets giving data on the uses of vermiculite in construction and in industry. "Vermiculite Loose-Fill Building Insulation" describes the properties of fireproof material and how it is installed. "Versatile Vermiculite In Modern Industry" contains fundamental information on four sizes of vermiculite and lists a number of current uses in each category.

56 **VIBRATING CONVEYOR**—Gifford-Wood Co. has released a bulletin illustrating and describing the "Oscilveyor" vibrating conveyor. Included are dimensioned engineering drawings and tabular information correlating pan size with the material travel speed.

57 **WELDING ROD**—Coast Metals, Inc. has released a booklet on the use of the No. 170 hardsurfacing welding rod. Deposit characteristics, welding and hardness data, and recommended uses are given.

58 **WELDING SAFETY**—Air Reduction Sales Co. has published a 32-page booklet entitled "Safety" for welding and cutting operators handling oxy-acetylene and arc welding equipment.

59 **WOVEN WIRE SCREENS**—Simplicity Engineering Co. has announced Bulletin 66 covering its line of woven wire screens for repair and replacement. Fabrication methods are described, and the available sizes and types are listed.

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MANUFACTURERS NEWS

Clark Equipment Co., Buchanan, Mich., has announced formation of a new subsidiary, Clark Leasing Corp., to finance leasing of its equipment on a national scale. Under terms of the plan, equipment is leased to the customer for a three or five-year period at an interest rate of 3.79 percent of the cost of the equipment. Customer is responsible for maintenance, insurance and any other costs resulting from the operation of the equipment. Included in the lease is an option for the customer to extend the lease on the equipment indefinitely at a low cost, and a provision can be added for the sale of the equipment to the lessee at the end of the rental term.

Birdsboro Steel Foundry & Machine Co., Birdsboro, Penn., announces that G. Clymer Brooke, executive vice-president, has been elected president of the company. He succeeds John E. McCauley, who has been named chairman of the board and chief executive officer. James M. Heppenstall has been advanced from treasurer to vice-president and treasurer, and Arlan L. Wentzel, former assistant vice-president and works manager, has been made vice-president and works manage.

Joseph T. Ryerson & Son, Inc., Chicago, Ill., has elected James M. Mead as a vice-president and director. He succeeds Ainslie Y. Sawyer, who has retired. Russell L. Peters, financial vice-president of Inland Steel Co., has also been elected a member of the board. He succeeds Everett D. Graff, retired, who was president of the company from 1937 to 1951.

Gardner-Denver Co., Quincy, Ill., announces the sudden death on May 2 of Edgar F. Schaefer, president of the company. He was 58 years old and had been associated with the firm since 1919. He started as cost clerk, subsequently becoming export manager and then assistant sales manager. In 1926 he was made vice-president in charge of sales and a director. He was elected vice-president in 1942 and president in 1947.

Bergen Machine & Tool Co., Inc., Nutley, N. J., announces that modernization of the Hackettstown, N. J. plant is progressing rapidly. A production line setup is now in use and all Tri-Matic block machines, batch mixers, front pallet returns and skip hoists are being manufactured in that plant, also all parts not made at the Lyndhurst and Nutley plants. The company has 135,000 sq.ft. of manufacturing space devoted entirely to the production of parts and machinery for the concrete products industry.

Quality Control Products, Inc., Durham, N. C., has been incorporated with an authorized capital stock of $100,000 and subscribed stock at $400, for the purpose of dealing in concrete additives. Incorporators are Howard F. Basile, operating manager; Dr. Thomas Amore, director of research,

and Mrs. Ann T. Basile. The company will distribute and also manufacture chemical substances and compounds for improving materials, primarily concrete and basic building materials related to the construction industry.

Hammermills, Inc., subsidiary of Pettibone Mulliken Corp., Chicago, Ill., announces the transfer of sales, engineering and manufacturing of the Bulldog hammermills to Cedar Rapids, Iowa, where these operations will be carried on with Universal Engineering Corp. Charles M. Bindner and Ted A. Oberhellman continue as president and vice-president of Hammermills, Inc.

Olin Industries, Inc., and Mathieson Chemical Corp., New York, N. Y. have submitted to stockholders a proposal to merge the two companies, which would be named Olin Mathieson Chemical Corp. John M. Olin would be chairman of the board; Thomas S. Nichols, president; and John W. Hanes, chairman of the finance committee.

Allis-Chalmers Mfg. Co., Milwaukee, Wis., has announced the appointment of R. C. Allen as director of mechanical engineering, and L. J. Linde as director of electrical engineering, for the general machinery division.

The Frank G. Hough Co., Libertyville, Ill., announces that Milton J. Weber, vice-president in charge of procurement, has been made a director, and Thomas F. Flood, production manager, has been named vice-president in charge of manufacturing.

International Paper Co., New York, N. Y., announces that Richard C. Doane, vice-president and general sales manager, has been elected president of the company. He succeeds John H. Hinman who has been named chairman of the board. F. Henry Savage has been named to succeed Mr. Doane as vice-president and general sales manager.

The Wellman Engineering Co., Cleveland, Ohio, has acquired the locomotive crane division and plant of The Browning Crane & Shovel Co., Cleveland, manufacturers of heavy-duty materials handling equipment, which will now be known as the Wellman-Browning locomotive crane division.

Osgood-General, Marion, Ohio, announces the appointment of Kenneth O. Williamson as sales manager to succeed James S. Fortiner, who has resigned. He was formerly assistant sales manager.

Caterpillar Tractor Co., Peoria, Ill., has announced the election of William Blackie as executive vice-president. Mr. Blackie, who is chairman of the board of Caterpillar Tractor Co. Ltd., Coalville, England, and a member of the Board of Trackson Co., Milwaukee, has been a vice-president since 1944.

Air Reduction Co., Inc., has announced that H. R. Salisbury, president of Air Reduction Sales Co., has retired after 28 years of continuous service. He will continue as a director

of the firm's foreign subsidiaries. J. H. Humberstone, president of the Ohio chemical and surgical equipment division, Madison, Wis., and vice-president of Air Reduction Co., succeeds Mr. Salisbury as president. R. E. Lenhard, vice-president, replaces Mr. Humberstone as president of that division.

Euclid Division, General Motors Corp., Cleveland, Ohio, announces the appointment of John A. Polhemus and Charles B. Pace as district representatives in the Middle Atlantic states. Mr. Polhemus will cover Connecticut, western Massachusetts, northern New Jersey and the eastern two-thirds of New York. Mr. Pace's territory includes all counties in New Jersey south of Mercer and Manmouth, all of Delaware, most of Maryland and eastern Pennsylvania.

Robertshaw-Fulton Controls Co., Greensburg, Penn., announces the appointment of Joseph C. McCarthy of Toronto as Canadian sales representative for the Robertshaw thermostat, American thermostat and Grayson divisions.

Stephens-Adamson Mfg. Co., Aurora, Ill., announces the election of the following officers: R. W. Brauer, vice-president; D. L. Stephens, vice-president; R. S. Wells, secretary; E. T. Rollins, treasurer; and F. P. Keine, assistant secretary and assistant treasurer.

SKF Industries, Inc., Philadelphia, Penn., announces that Richard H. DeMott, chairman of the board and president, was recently presented the Stevens Honor Award of the Stevens Institute of Technology. This award is bestowed each year on outstanding figures in American life.

General Electric Co., Detroit, Mich., has appointed Frank M. Mansfield III, as manager of product programming for the Carboloy department. He was formerly Detroit district engineer for Torrington Co.

Allis-Chalmers Mfg. Co., Milwaukee, Wis., has announced formation of Allis-Chalmers, Great Britain, Ltd., to handle A-C operations in the British Isles and in export markets served from the United Kingdom. Managing director is E. J. Mercer, general manager of the tractor division's English branch at Totton, Southampton.

Thor Power Tool Co., Aurora, Ill., has released a 16 mm. sound-color movie entitled "Modern Mining," filmed underground at the Colorado School of Mines and featuring Thor equipment.

Baldwin-Lima-Hamilton Corp., Lima, Ohio, has announced the appointment of W. D. Ellis as manager of South American sales, with headquarters in Sao Paulo, Brazil.

Mars Engineering, Inc., Newark, N. J., has announced establishment of a division for designing industrial dust collection and fume elimination systems.

Cement from Oil Shale

(Continued from page 59)

number of savings and other advantages, compared with a normal cement mill:

(1) The fuel is a part of the raw material, which can be mined at very low cost, the cost for the fuel being just as low. About 90 percent of the fuel cost can be saved, which is equivalent to more than 10 percent of the price of one barrel of cement at the mill.

(2) No equipment for unloading, storing, grinding, and handling of the fuel is required, which results in considerable savings in investment. Also no personnel for operating this equipment is needed.

(3) No capital investment is required for a three months' supply of fuels for emergency, which are necessary, when using fuels from outside sources.

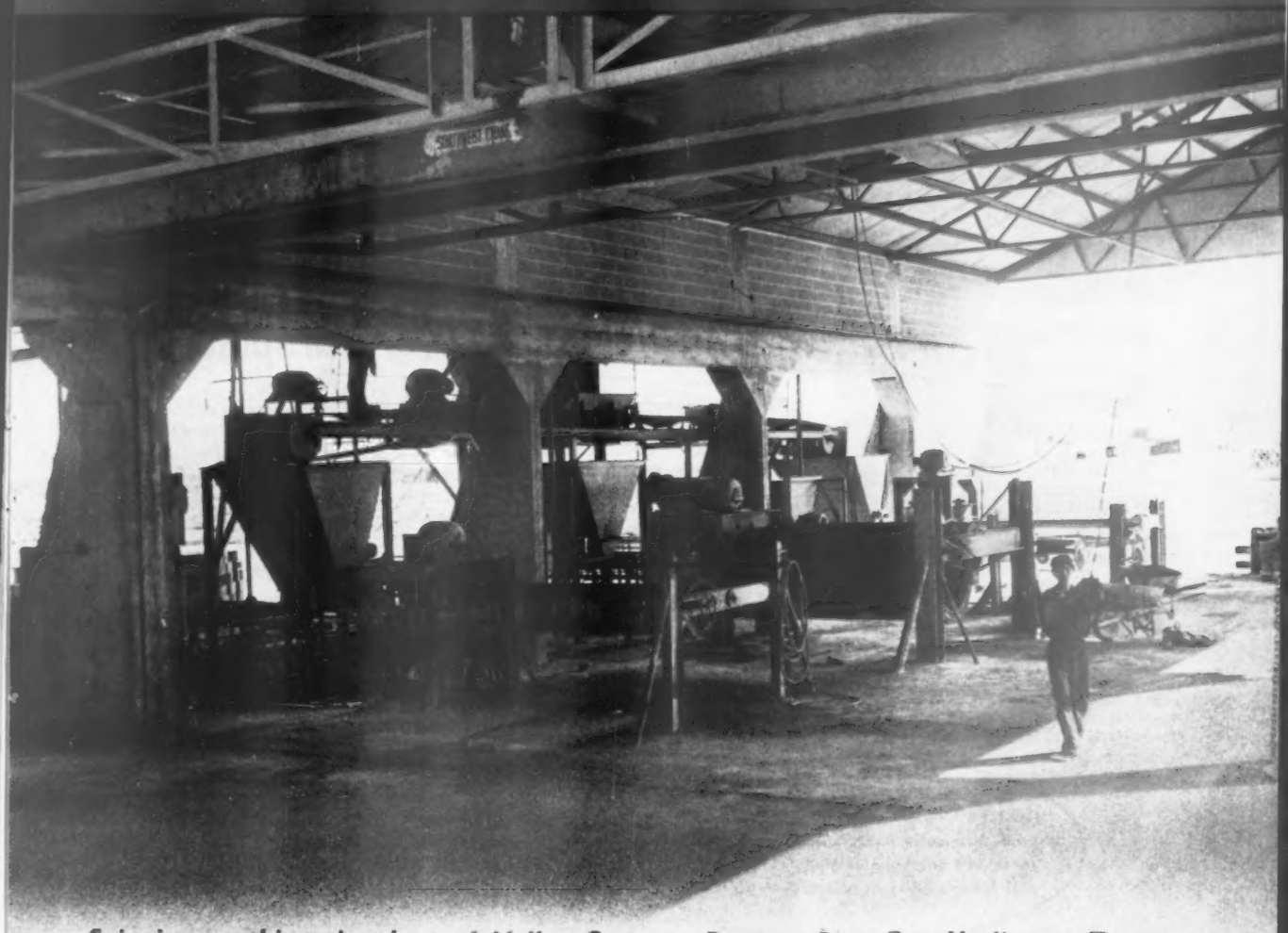
(4) The plant does not depend on deliveries from the outside and can be made entirely self-sufficient. This refers also to the power consumption. Electric power can also be generated in a power plant using the oil shale as fuel (or gas produced from the oil shale). There are a number of power plants in some parts of the world operating entirely satisfactorily and economically with oil shale as fuel.

This type of shale-oil cement plant described here was tried out in Germany, first on a small scale, and then on a commercial size basis.

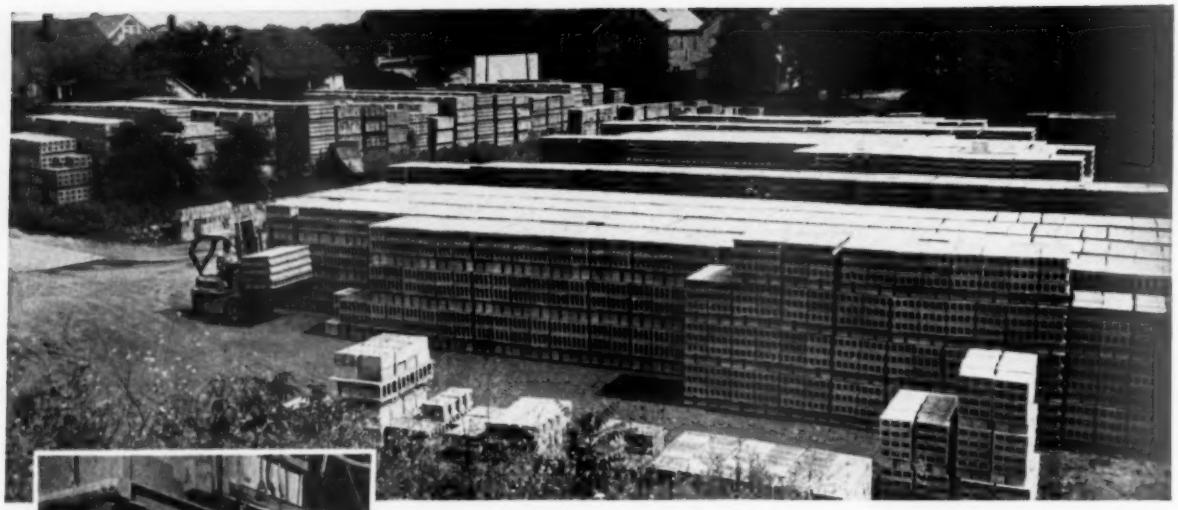
CONCRETE PRODUCTS

A SECTION OF ROCK PRODUCTS

CONCRETE UNITS · READY-MIXED CONCRETE



Spinning machines in plant of Valley Concrete Pressure Pipe Co., Harlingen, Texas



TRIM-LOOKING blocks made with Duraplastic Cement don't stand long in the yard of Grandview Gravel Block Company . . . these are ready to fill orders for construction of every description.

INTO THE MIXER goes Atlas Duraplastic Cement at the Grandview Gravel Block Company. Duraplastic makes a more plastic, cohesive mix . . . produces superior concrete products at no extra cost.

"We get a faster-selling, more attractive block with Duraplastic*"

"From both angles—sales and production—we get a better block with Duraplastic," says Frank Salamone, partner in Grandview Gravel Block Co., Schenectady, N. Y. "Customers go for our block—pleasing in color and texture. And in the plant," Mr. Salamone continues, "Duraplastic reduces breakage."

More and more manufacturers are discovering this combination of sales appeal and economy offered by Duraplastic Cement. Mixes are rubbery and cohesive . . . feed easily through the machine . . . to produce cleanly formed* block highly resistant to the passage of water. Reports also show that Duraplatic reduces the number of culls and throwbacks.

YET DURAPLASTIC COSTS NO MORE

Sells at the same price as regular cement. Requires no unusual changes in procedure. Complies with ASTM and Federal Specifications. For descriptive booklet, write Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Avenue, New York 17, New York.

"THRIFTY" SAYS: Profits go up . . . when you cut production costs with Duraplastic. Manufacturers report less breakage of green products . . . fewer costly culls and throwbacks.

"NIFTY" SAYS: Good appearance and good sales go together. Duraplastic-made products have clean true edges and corners . . . richer face texture, especially when harsh aggregates are used.

OFFICES: Albany • Birmingham • Boston • Chicago Dayton • Kansas City • Minneapolis • New York Philadelphia • Pittsburgh • St. Louis • Waco

*"*Duraplastic" is the registered trade-mark of the air-entraining portland cement manufactured by Universal Atlas Cement Company.*

CP D-158

ATLAS®

DURAPLASTIC

AIR-ENTRAINING PORTLAND CEMENT

Makes Superior Concrete Products at No Extra Cost

UNITED STATES STEEL HOUR—Televised alternate weeks—See your newspaper for time and station.

INDUSTRY NEWS

New Concrete Tile Plant

REDWOOD CONCRETE PRODUCTS CO., Redwood Falls, Minn., newly incorporated, has begun operation of its new concrete tile plant at Redwood Falls. The plant is housed in a 42- x 90-ft. building on a 155- x 466-ft. tract, near the Chicago & Northwestern Railroad, from which a spur line will be extended to the property. The plant includes three 13- x 50-ft. steam-curing rooms, and overhead steel bins for sand and cement storage. Among the officers of the new firm, and also part-owners, are Walter W. Smith and C. A. Keech, secretary-treasurer and office and sales manager, respectively, for Madelia Cement Tile Co., Inc., Madelia, Minn. Alfred Johnson, also of Madelia, has been named manager of the Redwood Falls plant.

Coated Concrete Pipe

CONCRETE PIPE, coated with a vinyl resin material, have been installed at the Esso Standard Oil Co., refinery

Interiors of concrete pipe sections are sprayed with vinyl resin coating, creating smooth, durable surface which helps expedite disposal of destructive residue

at Linden, N. J., with reported savings in both labor and material costs. Hydro-carbon residues are said to flow freely through pipe lined with this coating because the vinyl resins, on which both primer and finishing coats are based, resist chemical action and deterioration, thereby permitting the substitution of concrete pipe for expensive glazed pipe. Concrete pipe, which are available in longer sections than conventional clay sewage disposal pipe, require less labor for handling and have fewer joints to seal.

This new industrial coating is based on Bakelite vinyl resins produced by Inertol Co., Inc., Newark, N. J.

Block Plant Expansion

CATAWBA CONCRETE PRODUCTS CO., Hickory, N. C., recently installed a new block-making machine, which reportedly will triple plant production. Both conventional concrete block and lightweight "Solite" block are produced in 4-, 6-, 8- and 12-in. sizes. Officers of the company include H. Charles Menzies, president; Raymond Hollar, plant superintendent; and N. E. Caldwell, office manager.

Cover Picture

ON THIS MONTH'S COVER is an illustration showing the interior of the very modern concrete pipe plant of Valley Concrete Pressure Pipe Co., Harlingen, Texas. This company is one of the first to install in this country, in a permanent plant, the Rocla (Australian) system of manufacturing concrete pressure pipe, using four spinning machines.

Ready-Mix Plant

BARRY COUNTY READY MIX CO., recently incorporated with $50,000, has started construction of a ready-mixed concrete plant near Hastings, Mich., on property purchased from Hawthorne Gravel Co. Also purchased was the Steenbock gravel deposit. Officers of the new company are Leslie Hawthorne, president; Roy Dehaven, vice-president and secretary; and Roy Wiswell, treasurer.

Shown above is Universal Concrete Pipe Co.'s Miami, Fla., plant, placed in operation about a year ago. The plant is currently working double-shift to supply one of the largest orders in the firm's history, involving $2,000,000 in pressure pipe and other concrete projects for Miami's new $26,000,000 sewer project

CONCRETE PRODUCTS CO., Charlotte, N. C., has added "Homeward" precast concrete steps to its line of concrete products. The steps, which are cast in sections for easy installation by homeowners, are produced in either natural color, or in colors to harmonize with the home. E. Rowe Zimmerman is head of the company.

THE E. J. REES CAST STONE CO., Dover, Ohio producer of concrete block for 32 years, has now been incorporated as the E. J. Rees Cast Stone Co., Inc., with authorized capital of $200,000. The incorporators are Ernest J. Rees, president; David J. Rees, vice-president; and Pauline Rees, secretary-treasurer.

PRESTRESS ENGINEERING CO., INC., Wichita, Kan., has been incorporated to produce and sell prestressed concrete products. Authorized capital consists of $50,000. Henry J. Wiebe, Leona M. Wiebe and Richard F. Mullins are the incorporators.

A. BOOSKA SAND & GRAVEL, INC., Hinesburg, Vt., has been incorporated by Arthur H. Booska, William C. Hill and Ella O. Raymond. Capitalization consists of 100 shares of common stock, no par value.

ALLIED CONCRETE MATERIAL, INC., newly organized, has opened a ready-mixed concrete plant at Rosenburg, Texas. Ruben C. Koeppen is plant manager.

BRETZ, ALLEN AND KLINE CO., Oakley, Kan., has established a ready-mixed concrete plant at Alamota, Kan.

CRISS & SHAVER, INC., Camden, Ark., recently announced plans to move its $750,000 ready-mixed concrete plant at Camden to North Little Rock, Ark. The company also plans to build a new plant at Jacksonville, Ark.

LAMBERT'S CONCRETE WORKS has added a ready-mixed concrete plant to its concrete products operations at Sulphur, La. New plant equipment includes two 2½-cu. yd. transit-mixer trucks. The company also produces concrete block and tile.

CONCRETE PRODUCTS CO., Tucson, Ariz., has expanded its concrete block operations by the addition of a new block-making machine and five new steam-curing rooms.

THE CONCRETE BLOCK DIVISION of Multiplex Concrete Machinery Co., Elmore, Ohio, which has become a division of Multipak, Inc., is being merged with Spo., Inc., Cleveland, Ohio. The plant, which has been in operation in Elmore for over 50 years, is being moved to Cleveland.

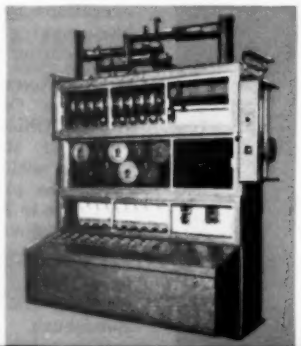
HARRISON READY MIX is a new company recently established at Harrison, Ohio, by Omar Clark and Frank A. Roudebush.

RICHWOOD CONCRETE PRODUCTS is establishing a new plant at Belle Center, Ohio, for the production of concrete block and drain tile.

"Repeater" automatically re-batches any mix selection

At the turn of a dial and push of a button, this Johnson commercial transit-mix plant produces any one of 120 different size and type batches of aggregates and cement. It weighs out any combination of materials you select on the central dial-scale control panel . . . and automatically repeats any batch selections for a pre-determined number of times.

The electric-control, 120-mix-selector panel provides for concrete of various strengths in any combination of materials, in ½ to 2 cubic yard batches. For each size batch there are individual selections for 3 to 6-inch slumps. Dial system makes it easy to change from one mix selection to another. To get any size or type of batch, operator merely turns the selector dial, sets the "repeater", pushes the "start" button . . . and the plant weighs out fast, with pinpoint accuracy. During the batching cycle, a lock prevents accidental change of the mix selector.



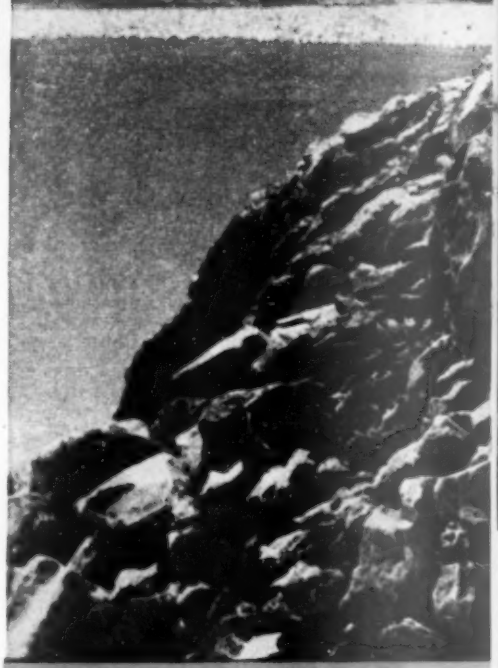
Nine material weigh-dials on the control panel have individual pen-recorders. Exact weight of each batch is automatically graph-recorded. Johnson batching equipment consists of: six 5000-lb. aggregate batchers (two with automatic moisture-compensators) . . . a 3000-lb. cement batcher with dual fill valves for selecting 2 types of cement . . . a 2000-lb. water weigh-batcher, and a 5-lb. (80-oz.) air entraining admix batcher. All are fully automatic.

Whenever you plan a new plant . . . or want to modernize an existing set-up, look into the increased efficiency you can get with Johnson equipment. You'll find your Johnson distributor is at your service . . . ready to help at any time.

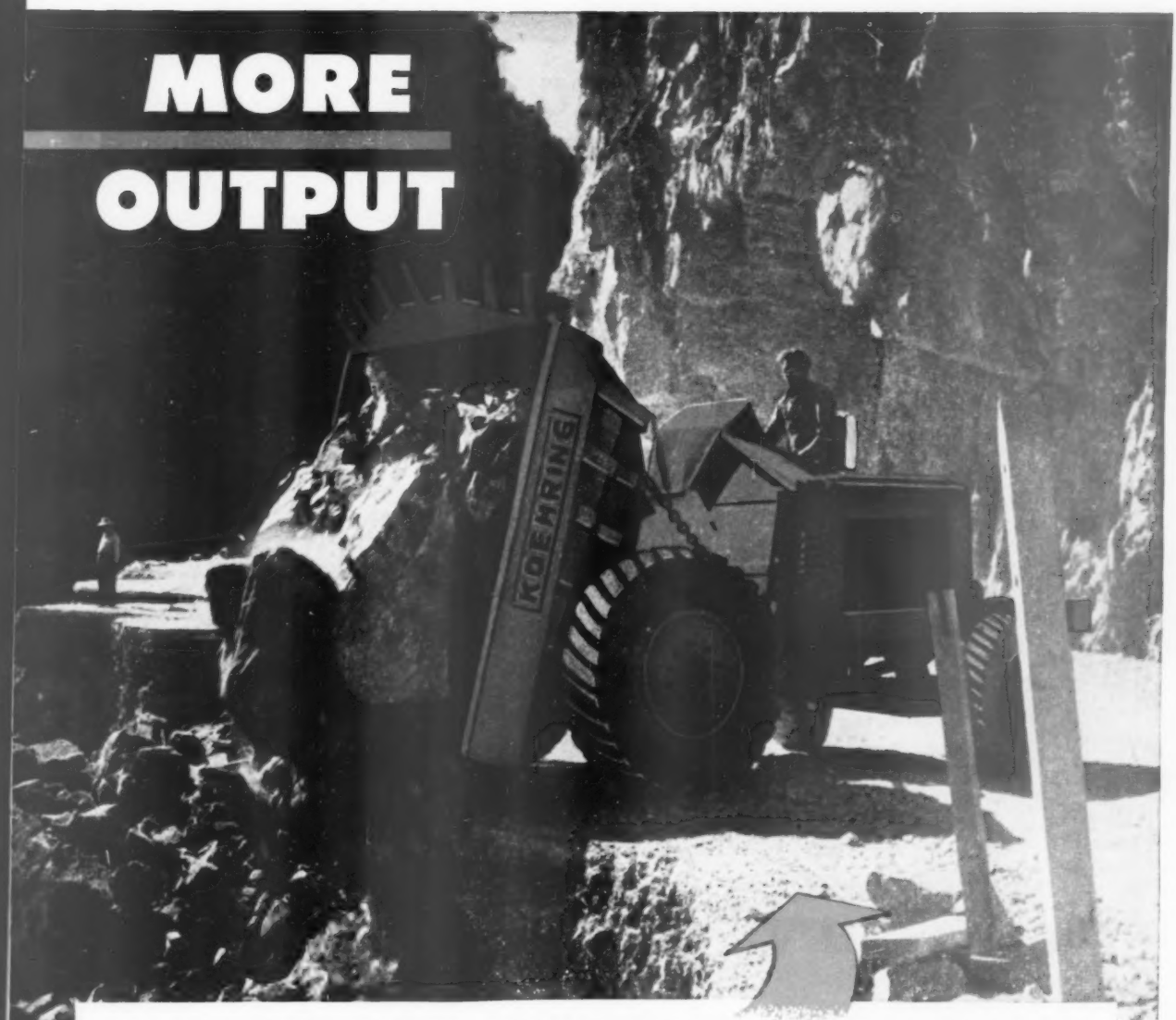
Z9

C. S. JOHNSON CO. CHAMPAIGN, ILLINOIS
Koehring Subsidiary

9%



GRAVITY DUMP never balks . . . never wears out. You get the same one-second dumping every time . . . under heaviest loads, and in all temperature extremes. There are no hoist maintenance delays, no costly hoist replacement parts to eat into profits when you use gravity-dump Dumptors.



. . . with ONE-SECOND gravity dump

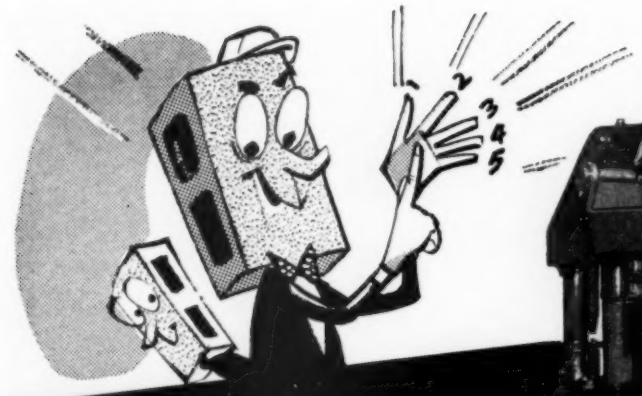
In just one second, Koehring heavy-duty Dumptor dumps its 6-yard load. Operator trips the body-release lever, and gravity tilts the scoop-shaped body 70°. One second later the load is out, and Dumptor is on its way back for the next load.

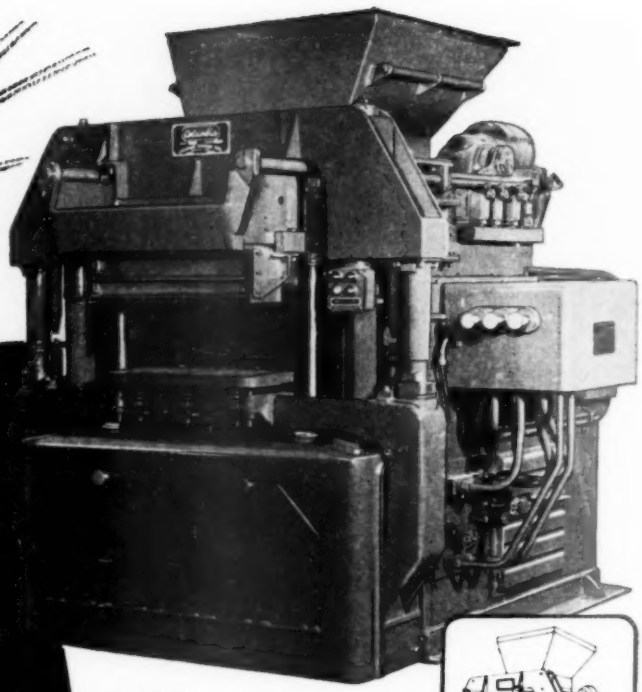
Because there's no waiting for slow-acting body hoists, Dumptor saves 15 to 25 seconds on every dump. This earns an important increase in extra yardage output. For example, take a typical 1,000-foot haul where an ordinary dump truck is making 16 trips an hour. Even if Dumptor took the same time to load, haul and return, it would average 17½ trips per hour on the same cycle. That's because Dumptor's one-second dumping advantage saves an average of 20 seconds on each trip . . . gains a total of 5.3 minutes more productive haul-time per hour. This, alone, adds 9% more yardage to your average hourly production.

What's more . . . by eliminating only 2 turns each trip, Dumptor no-turn shuttle-hauling adds another 10% increase in yards per hour. You'll find Dumptor® well worth looking into. See your Koehring distributor soon.

CK338

KOEHRING COMPANY MILWAUKEE 16, WISCONSIN
(Subsidiaries: KWIK-MIX • PARSONS • JOHNSON)





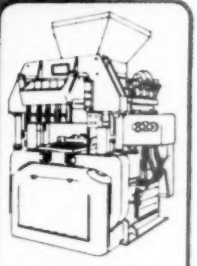
5 REASONS FOR *Columbia's* WORLD-WIDE ACCEPTANCE

1. Highest quality production!
2. Most flexible machine—with half the moving parts!
3. Electronic height control guarantees dense precision block!
4. Amazingly low purchase price!
5. 15-minute mold change!

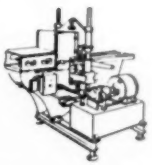
TOP PERFORMANCE

WITH COLUMBIA'S 3-BLOCK MODEL 12

Columbia performance includes fully-automatic, hydraulic operation ... production of 5 to 6 pallets of block per minute ... more production from less floor space—only 96 square feet for this three-block machine ... all moving parts enclosed for easier maintenance and greater safety.



Columbia Model 8, fully-automatic 2-block machine for fast, high-quality controlled block production.



Columbia's semi-automatic or fully automatic block splitter produces fast, clean-cut precision masonry units.

Columbia's batch mixer features a covered gear and V-belt drive, spiral steel blades, rugged construction — 12, 25 and 50 cubic foot sizes.

A few of over 250 types of precision blocks made with Columbia molds.

Write for FREE Catalog

NOW! Columbia Block Machines available on lease-purchase or outright sale!

DISTRICT OFFICES IN:
Wisconsin, South Carolina, Mississippi, Ohio, Florida, New Jersey, Virginia, California and Massachusetts

Columbia MACHINE

Home Office: 107 S. GRAND, VANCOUVER, WASHINGTON
Factory Branch and Warehouse at Mukwanago, Wisconsin

Attractive exterior of office and laboratory building represents a display of company's products

United Cement Products Co., Wichita, Kan., installs automatic controls for mixing and batching of concrete. Curing rooms have temperature controlled from central indicating station

By TIP BROWN

Block Plant With PUSH-BUTTON CONTROLS

KEEPING ABREAST of concrete products manufacture in Wichita, Kan., has involved a recent major rehabilitation program for Max and John Miller of the United Cement Products Co., preceded by long and careful planning in analysis of raw materials and mixing control. Plant changes were worked out with Wm. Conner, operations manager, and Carl F. Johnson, plant superintendent. F. Earl Baker* was engineering consultant on the installation of air equipment.

The plant was established in 1922 by Ralph Cowan and W. E. Craiglow, and is an outstanding producer in the area. The present owners acquired the property in 1946. It occupies a sizeable area in a well developed industrial section of north Wichita with some 400,000 sq. ft. of yard space. Adjoining property has been purchased to the north which includes 12,000 sq. ft. of under-cover storage in a former artificial ice manufacturing building of glazed Duntile concrete block veneer and structural steel roof supports. The space is now being used for storage of steel sash and door frames, reinforcing steel, sacked cement, and other building supply items. About one sixth of the space is scheduled to be converted into a new office and testing laboratory.

*Wichita manager of Webb Belting and Supply Co., representing Shrader air equipment and controls.

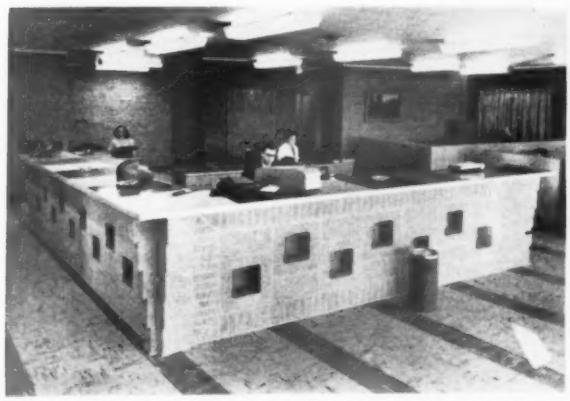
Plant Equipment-Layout

The manufacturing equipment consists of two Besser Vibrapac machines and a Lintelator which makes lightweight lintels to match lightweight wall construction and a vibrating table for pouring reinforced sand-concrete lintels for other uses. A traveling hopper on a monorail serves the two lintel machines.

A spur from the Rock Island railroad, holding ten cars, serves the plant in deliveries of cement, expanded lightweight aggregates from the Kansas City area, and scoria, or natural cinders, and pumice from producing points in New Mexico. Recent improvements include underground belt conveyors to unload aggregate from hopper bottom railroad cars. This work was formerly done by hand shoveling into elevator pits. Sand produced at several locations in the Wichita area is brought into the plant by truck. A 600-bbl. bulk cement Butler steel bin adjoins the manufacturing building to the south. Cement flows from hopper bottom cars by screw conveyor to a boot at the base of a bucket elevator.

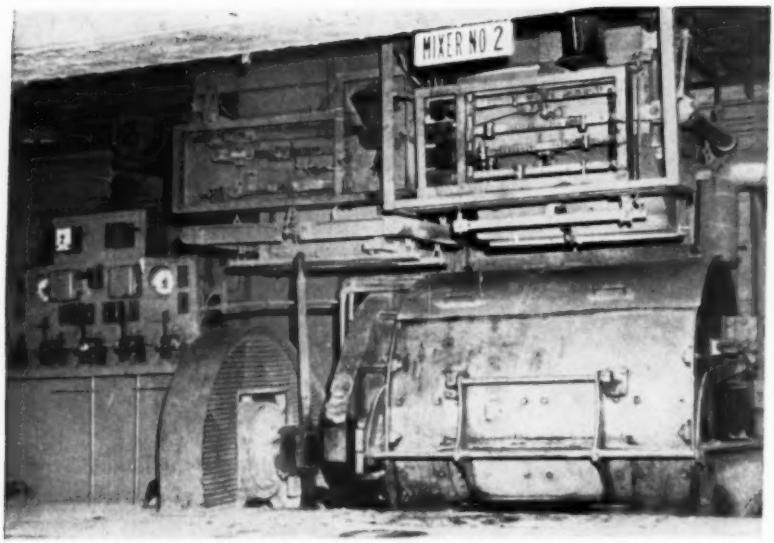
Push-Button Mixing Controls

Three overhead steel aggregate bins in the plant are supported by 12-in. I beams which in turn rest upon three 18-in. I beams over steel and concrete columns. One of the steel bins, used exclusively for sand, holds approximately 100 cu. yd. A second bin of similar capacity is for scoria. The third bin, with two compartments, is for pumice and expanded lightweight aggregate.



Office interior showing company's products in walls and modernistic order counter

Corner of testing laboratory where products are subjected to compression tests and materials are checked



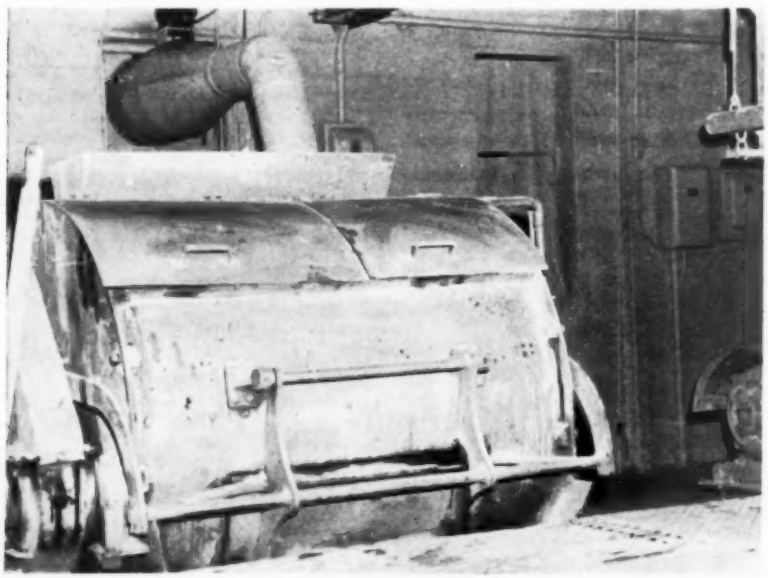
Weigh batcher at Mixer No. 2 position with control panel, to the left

The most recent plant installation has been a push-button mixing control system whereby cement and aggregate are released from storage and water from city main connections under amounts set up for each phase of manufacture by the plant superintendent. By means of electric controls, only one employe is required to operate the Butler traveling weigh batcher which moves over a double rail. The batcher moves to cement and aggregate positions where the flow of cement starts automatically, and is shut off by a mercury switch at previously set scale weights. Aggregate weights, registered by a Spink's weight indicator, are controlled by the operator at the control panel.

Water meters on the left and right sides of the panel board can be set for water proportioning up to 50 gal. The plant superintendent fixes the water content per batch for various types of manufacture based on the aggregate moisture.

A meter control is also set up on the board for the release of a red mineral pigment in water solution in a tank in an adjoining section from which it is pumped into the mixer when scoria block are being made. The color addition gives a distinctive appearance to the block, and it is easily identified wherever it is used. The color distribution is noteworthy by reason of its uniformity.

A calcium chloride solution dispenser is also metered to the mixer by time pump. Two 40-cu. ft. Besser mixers are loaded from the control board. They are equipped with dust removers, consisting of a 10-in. galvanized pipe with damper which carries dust from the covered mixers into a 16-in. chamber equipped with four-blade Tornado fans operated by ¼-hp. motors installed on the exterior. Dust is removed from the working area to the outside which creates better working conditions. A third mixer in the same control system discharges into the traveling hopper on the lower level serving the Lintelator and vibrating lintel table.



Pipe above mixer carries away dust in this operation

Aside from the control advantage in mixing which definitely affects the quality of the product, the change has reduced labor from two to one man, and has converted the mixing area into a wholesome place in which to work.

Training of a control operator has not proved difficult. Two experienced men are available for day and night work and a third trained man is in reserve for any emergency that may arise.

Curing and Storage

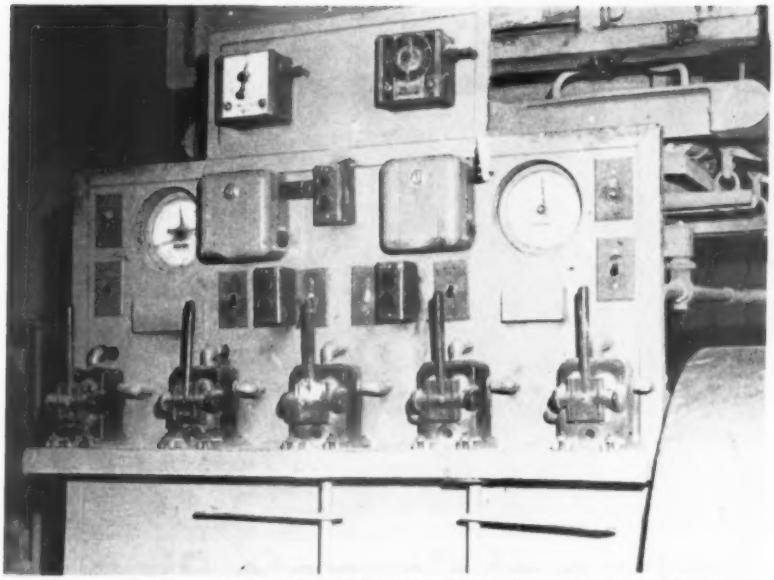
The plant has eight kilns equipped with insulated, sliding, carrier-type doors. Temperature indicators are being installed at a central indicator station where temperature readings of each kiln can be taken to maintain uniform control. A 50-hp. boiler is equipped with a preheater to increase boiler capacity. Open-yard storage is largely paved and will soon be complete; 28-day curing is maintained. Yard inventory usually averages 400,000 8- x 8- x 16-in. units or equivalent. A gripping fork is used as an attachment on one Clark and two Hyster lift trucks in cubing all block sizes: 4 x 8 x 16, 6 x 8 x 16, 8 x 8 x 16, and 12 x 8 x 16 in. Wooden pallets are used on other plant products; such as, halves, concrete brick, chimney blocks, and other specials.

Laboratory Control

Among the innovations installed in the new office, which was constructed in modernizing the former ice manufacturing building recently acquired, is the glass enclosed laboratory for testing raw materials and finished products. Wm. Conner, operations manager, is now in charge. Compression testing equipment, now on hand from the Concrete Mixing & Testing Equipment Co., Pittsburg, Penn., is designed to break cylinders and 8- x 12- x 16-in. and 8- x 8- x 16-in. block. Sensitive micrometers mounted permanently on test stands in the laboratory will be used in studying original shrinkage, and moisture content volume change. Platform scales will be available for weight checking, and hanging scales will be employed to determine moisture content and absorption. Sieve analyses will be made with gram scale weighing to establish ideal gradations and to check aggregates as received at the plant.

Progressive Management

The United Cement Products Co. is an incorporation with Max H. Mil-



Close-up of mixing control panel which has reduced manual operations to a minimum

ler, president; Don P. Harrington, vice president; and John P. Miller, secretary and treasurer. A third brother, L. A. Miller, is manager of an affiliated organization, Miller Bros. Supply Co., which handles building material specialties. He also has done considerable research work in the field of lightweight aggregate production for United Cement Products Co.

Max and John Miller gained much local attention in 1949 by building twin concrete masonry houses, known as Twinspiration homes, which were used as public exhibition homes. An extensive radio broacasting program brought thousands of visitors to witness the construction and later to attend the formal opening. The houses are of excellent design, and adapted to display the functional advantages of concrete masonry. The third brother is now planning a similar activity in the building of a concrete masonry home for his family.

Max H. Miller has been a generous contributor of energy, time, and talent to civic activities in the Wichita community. He served as chairman of the Aviation Committee of the Wichita Chamber of Commerce, and currently he is president of the Wichita Chamber and also president of the Wichita Crime Commission. He is active in committee work in the National Concrete Masonry Association.

Kansas City Home Show

CONCRETE PRODUCTS MANUFACTURERS were well represented in the exhibits at the Kansas City, Mo., Home Show, held this year, April 4-10. Displays were predominately directed toward use of masonry units and attracted considerable attention from the 95,000 visitors. Illustrated herewith is the entrance display, supplied by the show management, featuring a Dutch scene, complete with windmill and gardens. The attractive split-rock wall surrounding the gardens was supplied by Concrete Building Units Co. The second illustration is the exhibit of Cinder Concrete Products, Inc., Kansas City, Mo., featuring patterns of masonry units for outdoor living. Carter-Waters Corp. utilized its exhibit to show construction features of its Haydite demonstration home in Kansas City, which was open to the public during the show held this spring.

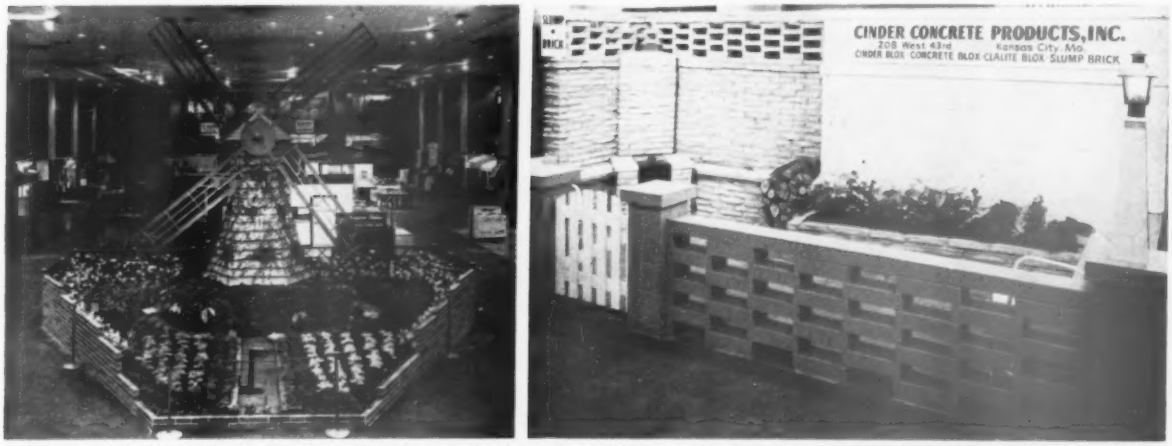
Calcium Chloride in Block Manufacture

THE CALCIUM CHLORIDE INSTITUTE has announced availability of a new data sheet, Brief CB-1, on "Calcium Chloride for Concrete and Cinder Blocks," covering recommended procedures for use of calcium chloride in block manufacture, and advantages of using calcium chloride. These advantages reportedly include higher early strength, shorter curing period, reduced cracking, and greater strength at all ages. The data sheet Brief CB-1 may be secured, free of charge, from the Calcium Chloride Institute, 909 Ring Building, Washington 6, D.C.

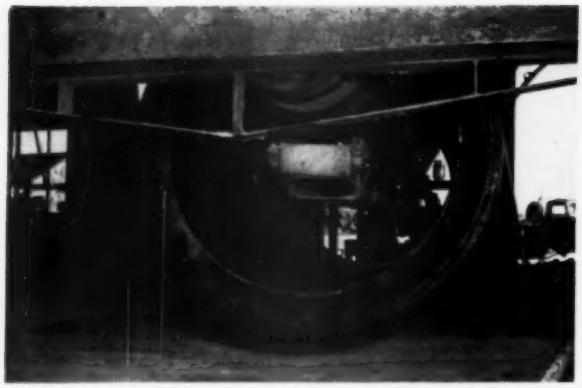
Concrete Masonry Meeting

THE SPRING MEETING of the North Carolina Concrete Masonry Association was held May 7-8, at Winston-Salem, N. C., with Veteran Building Block Co. as company host. Highlight of the meeting was a luncheon, honoring past presidents with a "Service Appreciation Award." Those receiving the award were L. W. Upchurch, Raeford, N. C.; H. W. Shaw, Raleigh, N. C.; J. F. Cannady, Henderson, N. C.; L. J. Badgett, Mount Airy, N. C.; P. L. Barnes, Winston-Salem, N. C.; R. D. Adams, Durham, N. C.; and J. B. Linville, Wilson, N. C.

The new North Carolina registration law and testing requirement was a subject for discussion. Also discussed were plans for the annual meeting which will be held in October on the Swedish liner STOCKHOLM, during a cruise to Bermuda from Morehead City, N. C.



Left: Entrance display at Kansas City Home Show features Dutch gardens enclosed in attractive split-rock wall, supplied by Concrete Building Units Co. Right: Exhibit by Cinder Concrete Products, Inc., features patterns of masonry units for outdoor living



Left: Showing arrangement of movable concrete feeder belt conveyor after jacket has been placed on spinning shaft. Right: Slightly moistened concrete is placed by shovel in bell end of jacket before main pouring operation

SPINNING and ROLLING
In the Manufacture of Concrete Pipe

Valley Concrete Pressure Pipe Co., Harlingen, Texas using the Rocla rotary suspension method of making both reinforced and non-reinforced concrete pipe

By HUBERT C. PERSONS*

ONE OF THE FIRST to use the Australian patents in spinning concrete pipe on a production basis is the Valley Concrete Pressure Pipe Company of Harlingen, Texas. This organization has recently completed a permanent plant, using the process originated with Rocla Concrete Pipes, Ltd. of Melbourne, Australia, which in the trade is known as the rotary suspension method. Either reinforced or non-reinforced concrete pipe of all sizes are threaded on a horizontal rotating shaft and spun to peripheral speeds approximating 600 to 1000 feet per minute.

*Industrial public relations consultant, Chicago, Ill., and for many years manager, Public Relations Bureau, Portland Cement Association.

Four Spinning Machines

The plant at Harlingen operates four spinning machines, making pipe in sizes from 12 in. to 72 in., all in 8-ft. lengths. Mixes of sand, cement, and gravel are batched and delivered in dump trucks from the Valley Ready-Mix Concrete Company plant, approximately two miles away, which is operated by affiliated interests. Aggregates include gravel of ¾-in. maximum size and a blend of Rio Grande City coarse sand and Nueces River medium sand. The high-early cement used is furnished by the San Antonio Portland Cement Company, San Antonio, Texas. These materials reach the plant in dry form, already weighed and proportioned. A maximum of six bags of cement is used. An 18-in. belt conveyor, 70-ft. centers, carries the dry mix to a central mixer where water is added. It is then dumped from the mixer onto a conveyor belt above each spinning machine. Because no slump concrete is used, compressive strengths range from 5000 to 7500 p.s.i. at 28 days. Before the rotating jacket containing wire cages is filled with concrete, the bell end is filled with slightly moistened concrete by hand shovel. A light water spray is used on the pipe interior to assure a smooth exterior finish.

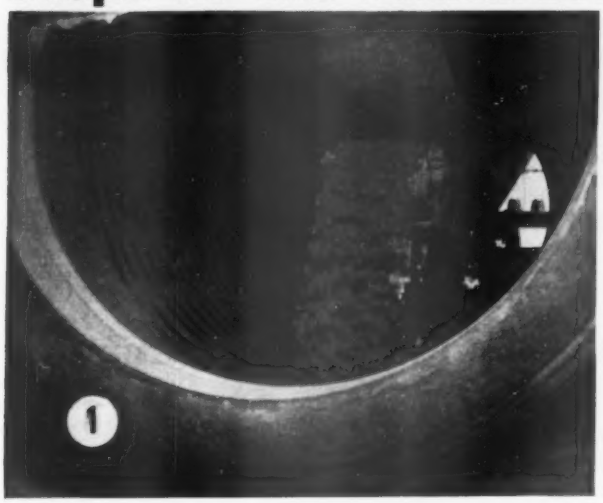
A 42-in. Rocla pipe jacket threaded on spinning machine

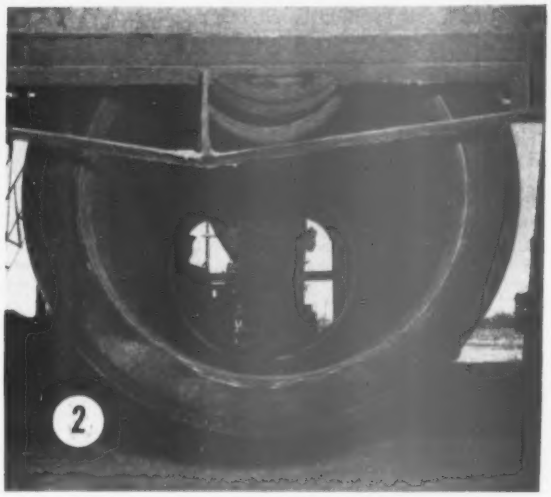
Makes Forms and Gaskets

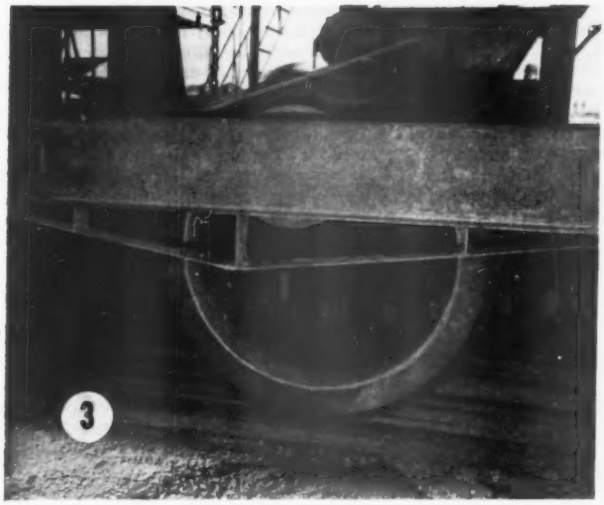
The company makes all its own forms in sizes up to 24 in. Larger forms are fabricated in an outside shop from drawings and specifications supplied by the company. Gaskets also are made in the company's own shop. Rubber gasket stock ½-in. thick is used for pipe from 12 in. to 18 in. Larger pipe requires ⅝-in. gasket stock. This rubber stock is vulcanized

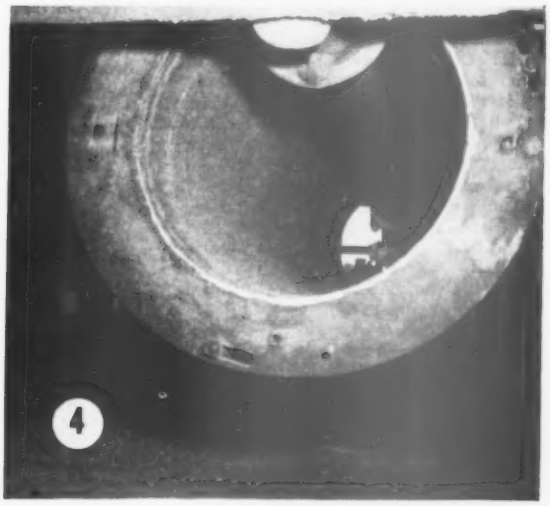
(Continued on page 118)

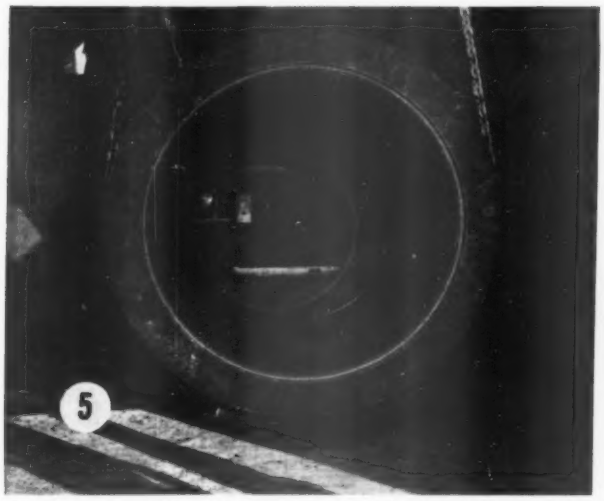
Steps In the Manufacture of Concrete Pipe











Steps in the manufacture of concrete pressure pipe by spinning and then rolling with shaft. Fig. 1: Shows wire cage reinforcing as rotating pipe jacket is being filled with concrete from feeder belt. Fig. 2: Jacket being filled with concrete while rotating. Fig. 3: Light spray of water is introduced to assist in getting a better interior finish. Fig. 4: Rolling pipe by compaction for 3 min. after concrete pouring operation has been completed. Fig. 5: An 8-ft. section of finished 42-in. pipe ready to move into curing room. Fig. 6: A 24-in. pipe on test rack just before joining sections

into a continuous gasket with special equipment in the shop. One of the advantages claimed for Rocla pipe is that joints are sufficiently flexible to permit movement of as much as ¾-in. without leakage.

Before the pipe go to the steam curing room, a final step in manufacture is rolling them on the spinning shaft for 3 min. Pipe are steam soaked at 135 to 150 deg. F. for 12 hr. and then are water sprayed for three days. Pipe and forms are moved with a 15,000 lb. Southwestern traveling crane. In the yards, pipe are handled with either a Hyster or a Clark heavy-duty fork lift truck.

Begin Production in 1953

According to Hill Cocke, president of the Valley Concrete Pressure Pipe Company, experimental work on Rocla pipe was begun early in 1952. Actual production was started in June, 1953. Mr. Cocke says that thus far American-made Rocla pipe has been used in water lines and for irrigation pipe. He is especially enthusiastic about the smooth finish possible through the Rocla method.

Mr. Cocke is president of three concrete companies in the Rio Grande Valley. Besides the company at Harlingen, making Rocla pipe, they are the Valley Concrete Pipe Co. at Pharr and the Valley Ready-Mix Concrete Co., previously mentioned.

The Valley Concrete Pipe Co. makes reinforced concrete pipe in sizes from 12 in. to 72 in. Plain concrete pipe is made in sizes from 6 in. to 12 in. Three packerhead and two tamper machines are operated.

Cement and aggregates are delivered to the pipe machines on a 24-in. belt conveyor, 286-ft. centers, from the adjoining ready-mixed concrete plant.

Testing stands for both compression and hydrostatic strengths are maintained at the plant. A large stock of pipe is kept in the 7-acre yard area.

In addition to Mr. Cocke, officers of the Valley companies are A. C. Clarke, secretary of the two pipe companies; and Franklin F. Sherman, secretary-treasurer and Wilson G. Palmer, vice-president and sales manager of the Valley Ready-mix Concrete, Co.

New York Masonry Meeting

THE NEW YORK STATE CONCRETE MASONRY ASSOCIATION held its semi-annual meeting, May 7, in New York City, with over 35 members and guests in attendance. Harvey H. Black, association president, presided.

Speakers at the one-day meeting included: Henry C. Quaritius, Brooklyn, N. Y., a director; John D. Daly, Auburn, N. Y., treasurer; Ira S. Robbins, New York City, president of the National Housing Conference, and executive vice-president of the Citizens' Housing and Planning Council of New York; Garson Dinaburg, Binghamton, N. Y., a director; and James T. Russell, New York City, an associate member.

Left to right: Ephraim Dyer, Jr., association field engineer, L. H. Tuthill, Chief of Concrete Laboratory, U. S. Bureau of Reclamation, Denver, Colo., H. W. Chutter, association president, Les Stromberg, Fresno County farm advisor, and H. F. Peckworth, managing director, American Concrete Pipe Association

Western Concrete Pipe Meeting

THE WESTERN CONCRETE PIPE ASSOCIATION held its 35th annual convention, April 21-24, 1954, at the Hacienda Motel, Fresno, Calif., with producers attending from Arizona, New Mexico, Oregon, Texas and California.

The convention opened with a meeting of the board of directors, at which Ephraim Dyer, Jr., field engineer, reported on his activities which included visiting member plants and engineers, as well as others interested in the use of concrete pipe. He will travel throughout the southwest and northwest this summer, covering the entire territory represented by the association.

It was reported that six new active members and four new associate members were obtained since the publication of the 1953 directory.

At the opening session of the membership meeting, reports were made by the president, secretary-treasurer and the field engineer. Incumbent officers were re-elected for a term of one year, and the following directors were elected for a three-year term: Fred N. Lynn, United Concrete Pipe Corp., Modesto, Calif.; Francis Mangine, Visalia Concrete Pipe Co., Visalia, Calif.; Fred Spiekerman, Ed. Spiekerman Concrete Pipe Co., Lodi, Calif.; and Carl B. Warren, Spokane Concrete Pipe Co., Spokane, Wash.

Howard F. Peckworth, managing director of the American Concrete Pipe Association, reported on the activities of the national association, including such projects as an investigation of hydrogen sulfide which was currently being conducted at Tulane University, and a formula for the proper design of reinforced concrete pipe.

The advantages and disadvantages of sprinkler irrigation were discussed, and it was agreed that a thorough investigation be conducted. Attention was called to the recent electrocution of three men in the San Joaquin Valley when the sprinkler irrigation pipe they were carrying had come in contact with high voltage wires. A speaker from the Agricultural Extension Service discussed the subject, "Angular Leaf Spot on Cotton" as it occurred on 3000 acres in the Central San Joaquin Valley last season, and reported that the disease had been transmitted by sprinkler irrigation.

Following a discussion on the subject of precast sewer manholes, a suggestion was made that the industry promote the use of portable ladders in place of fixed steps in such manholes. An attempt is also being made to promote a standard specification for the manufacture of precast manhole sections.

L. H. Tuthill, Chief of the Concrete Laboratory, U. S. Bureau of Reclamation, Denver, Colo., and the featured speaker, gave his observations on concrete pipe manufacture and installation, illustrating his talk with pictures taken throughout the West.

Other features of the convention were: a discussion by representatives of two employers councils on labor-management problems and the need for remedial legislation; a discussion of the federal tax bill providing that up to 25 percent of a farmer's gross income can be deducted for certain soil expenditures and water conservation; a series of hydrostatic tests made at the association laboratory; and the annual cocktail party and dinner dance at which approximately 100 members and guests were present.

The members voted to hold the fall meeting at Long Beach, Calif., during the latter part of October.

Crushed Stone Producer Adds Ready-Mix Plant

HECKER QUARRY, INC., New Athens, Ill., has added a ready-mixed concrete plant to its stone quarrying operations at New Athens. The new plant, which is operated under the name of New Athens Ready-Mix Concrete, is equipped for unloading both trucks and railroad cars. Other facilities include aggregate storage bins of 130-ton capacity, bulk-cement storage facilities of 700-bbl. capacity, and two 3½-cu. yd. transit-mixer trucks. A 6-cu. yd. mixer truck is to be added this spring. Owners and operators of the quarry and ready-mixed concrete plant are Cletus Lischer, Harold Lischer and Tom Wilson. Cletus Lischer also operates a trucking and lime-spreading service.

Airplane view of Besser plant. Inset, bottom left, shows original plant

Besser Celebrates Golden Anniversary

Concrete block producers, cement officials, N.C.M.A. officers and Alpena Chamber of Commerce help celebrate 50 years of service to industry. Break ground for block manufacturers' school

By HUBERT C. PERSONS*

THERE WAS WORLD-WIDE INTEREST in the observance of the golden anniversary of the Besser Manufacturing Co. and the 72nd birthday of its president, Jesse H. Besser, in Alpena, Mich., May 21. Concrete block manufacturers from several foreign countries as well as from the United States and Canada, attended the Besser banquet arranged by the Alpena Chamber of Commerce as a community tribute to Jesse H. Besser. Speakers emphasized the fact that the Besser Manufacturing Co. operates the largest plant in the world devoted exclusively to the production of concrete block machinery and accessories.

Seven hundred men and women were seated at the banquet table in the Alpena Memorial Auditorium and at least 100 more were in the balcony to hear the program. The celebration really extended over three days, including a ground-breaking ceremony for the new Besser school for block manufacturers on Saturday, May 22, followed by lunch for out-of-town visitors at the Eagle's Club, a tour to inspect concrete masonry buildings in Alpena Saturday afternoon and a reception at the beautiful home of Mr. and Mrs. Besser. A testimonial luncheon was held for Mr. Besser, a Rotarian for 32 years, by the Rotary Club of Alpena on Monday, May 24. Conducted tours of the Besser plant buildings were held on Friday, Saturday and Monday. The modern Besser plant comprises 175,000 sq. ft. of floor space and employs 750 people. The payroll averages $140,000 every two weeks.

Banquet Program

The banquet Friday night was unique in the professional smoothness with which 700 guests were served, the waiters being members of the Alpena Boys' Club, 8 to 12-years old. The Michigan lake trout and other items on the menu were prepared by alumni members of the Boys' Club.

J. Stanley Godfrey, president of the Alpena Chamber of Commerce which planned and sponsored the entire celebration, presided. The invocation was given by Rev. Robert M. Barksdale, pastor of the First Congregational Church of Alpena. Carl R. Henry, an Alpena attorney and lifetime friend of Mr. Besser, was toastmaster. He spoke briefly of the early career of Mr. Besser and said that the Besser

Besser executive team. Seated, from left to right: Delmar R. Fox, sales manager; Philip M. Park, vice-president; Jesse H. Besser, president; Frederick C. Burnett, secretary; Ray Douglas, production manager; Haakon Paulson, distribution manager. Standing, left to right: R. F. Hastie, advertising manager; Elroy Boboltz, vice-president; Howard Davis, chief engineer; Erwin Boboltz, superintendent of machine assembly; Marx P. Rosenthaler, treasurer; Ray Bailey, purchasing agent; Clem Mason, architect and builder service; and Joseph Pinson, service department manager

*Industrial public relations consultant, formerly manager Public Relations Bureau, Portland Cement Association.

M. E. Rinker, N.C.M.A. president, to the right, presenting plaque to Mr. Besser

Manufacturing Co., founded in 1904, is now the oldest manufacturing enterprise in Alpena. Mr. Henry referred to the many messages of congratulations and good wishes which he said had poured into Alpena for Mr. Besser from all over the country, and indeed from many parts of the world, including one from "Boss" Kettering of General Motors.

Harlow E. Herrin, Mayor of Alpena, was introduced by Mr. Henry and delivered a brief greeting to the out-of-town guests.

N.C.M.A. Presents Plaque

A bronze plaque commemorating the machinery developments of the Besser company which have had a profound influence on the concrete masonry industry, was presented to Mr. Besser by M. E. "Doc" Rinker, of West Palm Beach, Fla., on behalf of the National Concrete Masonry Association of which Mr. Rinker is president. Fifteen officers and staff members of the Association were present.

Plaques or other testimonials to Mr. Besser were presented by the Alpena Exchange Club and the Alpena Kiwanis Club. Dr. F. J. O'Donnell presented a plaque on behalf of the Catholic Central High School. This school, a modern concrete masonry structure, is on a 22-acre tract donated for the purpose by Mr. and Mrs. Besser.

A dramatic point in the banquet program was the unveiling of an oil portrait of Mr. Besser which was one of his birthday gifts from the Chamber of Commerce. And the climax of the party, which the Alpena News called, "a great, heart-warming, community demonstration," was Mr. Besser's response to the presentation of the portrait.

"Jesse Besser himself stole the show at his own party," wrote John Emmet Richards, publisher of the Alpena News and friend of Mr. Besser for many years. "He did not do it intentionally," the publisher wrote, "but no one in the audience could escape the simple, unaffected charm of the man as he broke from his prepared speech. He threw his personality into off-the-cuff asides, particularly in presenting important figures in his own and allied industries, men with whom and in competition with whom he had worked for years. Here was Jesse Besser himself, in an old-shoe mood, working the best memory in his own or other industries, and he brought down the house."

John T. Pennachetti, president of National Concrete Products Association of Canada at groundbreaking ceremonies for Besser School

Introduces Veteran Block Men

Among the veteran block makers introduced by Mr. Besser were Vincent Paturzo and his son Sam Paturzo of V. Paturzo Brother & Son, Baltimore, Md. The elder Mr. Paturzo bought a Besser block machine, the first model made, in 1904, and has continued to use the latest models throughout the years. Other old-time block makers introduced by Mr. Besser were Joe Nagy of Detroit whose father owned a Besser machine in 1904 and who now operates the largest capacity Besser machine yet produced; Eli Felabaugh of Toledo, Ohio and Fred Reinhold of Buffalo, N. Y. Mr. Besser also introduced some of the veteran Besser plant employes with whom he had worked in the early days of the company. These men, who were asked to stand with their wives were Harry Smith, Jim Miller, Howard Davis and Erwin Boboltz. Eugene Olsen, president, GoCorp., Adrian, Mich., was introduced by Mr. Besser as a leading competitor.

In introducing Paul H. Townsend, president of the Huron Portland Cement Co., Mr. Besser called attention to the fact that the Huron plant at Alpena is the largest cement plant in the world. He said that he believed 17 percent of the Huron production of portland cement was utilized in making concrete masonry units.

An impressive feature of the banquet program was the appearance of the Besser Male Chorus of 50 voices. As Director Ralph Michaud led the white-coated chorus in a special arrangement of "Happy Birthday," a huge birthday cake was wheeled to the platform. Each of the five layers represented an important new development in the history of Besser block machines.

With the presentation of the birthday cake, the gift of Besser employees, Mr. Besser led his wife to the podium and introduced her as his "sweetheart, his kind mentor, his wise guide, his good companion of the years." The audience applauded tumultuously as the couple stood together.

Predicts Six Billion Block

Concluding personal references, Mr. Besser said he had a program and a challenge to offer the concrete masonry industry. He sketched the swift increase in the use of concrete masonry during the half century in which the Besser company has been making block machines. This rapid acceptance

of concrete masonry units he attributed to their durability, economy, convenience, availability and inherent beauty for buildings of all kinds. Mr. Besser predicted an annual production of six billion concrete block within a few years.

"About two billion block per year are being produced in the United States in these early years of the 1950's," he said, "and the forecast is for six billion block in five to ten years." Jumping from a production of two billion to six billion block, Mr. Besser said would involve improving the product and the industry in various ways. "There are ways," he said, "by which we can earn and thereby secure a still greater acceptance of this splendid building material."

Suggests Five Needs

Mr. Besser pointed out five needs of the concrete masonry industry which he said would help reach the objective of six billion block per year. These needs he listed as follows:

"(1) All block plants need a rigid and constant control of the manufacturing process from selection, grading, proportioning, mixing of the aggregate on through to the forming and curing of the block.

"(2) We need more block makers like those in this room tonight who meet competition by continually making better block rather than otherwise and who have three things—the know-how, the determination and the personnel to make all block to highest standards which should be well above the minimum requirements.

"(3) We need a better understanding of the various uses for block and more attention to furnishing proper block for the different uses.

"(4) We need more selection and buying of block by the architect and owner as is now being done in many cases. Buying by the contractor inherently produces the twin evils of price cutting and quality cutting.

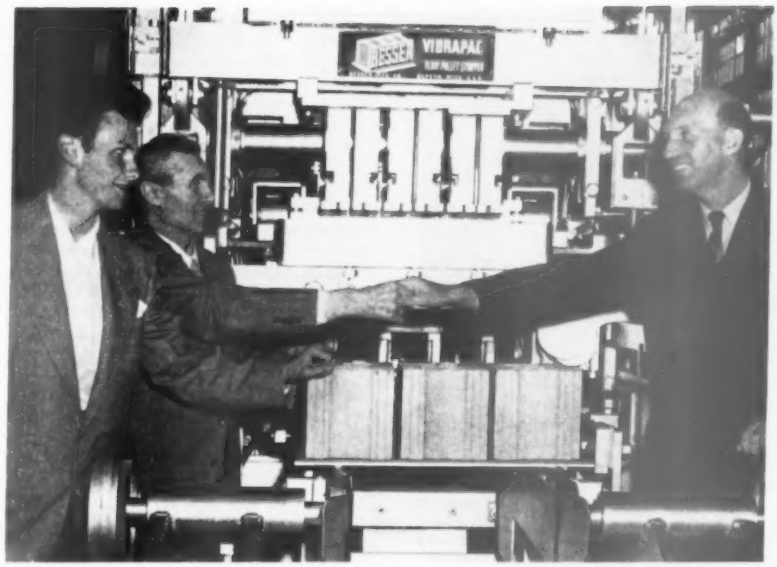
"(5) We need more effective promotion of block and thorough service on each block job with architect and builder."

Urges More Dense Block

Mr. Besser then said he wanted to make "a startling suggestion," to emphasize a suggestion which he said the Besser organization had been making for many years.

"All block for exterior use," he declared, "must be dense and water-tight and of such shape as to conveniently produce a watertight wall without painting or treatment. This is being done," he said, "in a few plants and can be readily accomplished with either heavy weight or lightweight concrete.

"Your consideration and approval of this suggestion is earnestly requested. It is the answer to an insistent demand from many quarters. Isn't 50 years a long enough time in which to attain this highly desirable and necessary result? You will probably agree that this step is long overdue and that it will do away with many evils and will really supply what has been the missing link in this great industry, and will bring new prestige, new beauty, better buildings and increased production of block.



Left to right: the son of Jon Loftson, from Iceland, Jon Loftson, and Mr. Witherspoon of Adelaide, South Australia, shaking hands

Sees Increased Uses

"The increased demand from the points just mentioned when added to increased demand from natural growth of our country, should achieve the six billion block goal per year within five to ten years. Let us all get busy, effectively busy on this stepup immediately. Thanks and congratulations to the National Concrete Masonry Association for their enlarged and expanded service. They are doing and will do great things for this industry."

In a later interview, Mr. Besser said that increased use of high pressure steam curing would tend to stimulate use of block because shrinkage is minimized. He also expressed the belief that use of block in prestressed concrete construction in combination with Tilt-Up and use of block in floor systems would help increase the demand for block.

Following Mr. Besser's remarks, a guest speaker, James E. Gheen, a New York public relations man spoke.

Rt. Rev. Msgr. John Gatzke, pronounced the benediction and the program closed with the singing of America led by the Besser chorus. As the program was concluded, however, hundreds of the guests made their way to the rostrum to tender their congratulations to Mr. and Mrs. Besser.

Ground-Breaking For School

Ground-breaking ceremonies for the new Besser School for Block Makers and Users on a site near the Besser plant, opened promptly at 10 a.m. Saturday, May 22, with more than 500 people on hand. P. M. Parks, vice-president of the Besser company, presided. A special feature of the program was music by the Alpena High School Band under the direction of Robert Dunstan. After the invocation by Ray Douglas, production manager of the Besser plant, Mr. Besser explained the purpose of the new school.

"This school is to be a training center for quality block-making," Mr. Besser said. "It will be a place where every block producer and architect and builder anywhere in the world can come to study and actually practice block-making for a day or a month or a year.

"This is especially necessary in the

Mr. and Mrs. Besser in front of golden jubilee model of Vibrapac

Jesse H. Besser, responding as oil portrait presented by Alpena Chamber of Commerce is unveiled. Porcelain falcon was gift of John Loftson, block manufacturer from Iceland

concrete block industry," Mr. Besser said, "because it is so easy to do good concrete work, and we are sorry to say it is just as easy to do poor work and in many instances without the producer knowing what he is doing. This is the thing which we must hit and hit hard.

Work of New School

"The work of this school will be divided into two parts: first, to give the know-how by study and practice; and second, to get the producer to execute that know-how thoroughly, completely, all the time; to realize that he is building for eternity. We should also have more help, much more help from the architect on all of this."

Addressing William G. MacDonald, superintendent of the Huron Portland Cement Co. plant in Alpena, an official guest, Mr. Besser declared, "We must get production of block and control of quality and an understanding of what quality consists of so that we will have these points on as sound and solid a basis as you have them in the manufacture of portland cement. It is much more difficult to maintain those high standards and to keep a straight, true course in the concrete block industry because of the far-flung and widely scattered ownership and management.

"The concrete block is our precious jewel. Let us bring out its many advantages to the utmost. This school must and will be a shining light to point the way and inspire and guide us."

Training and instruction similar to that which will be offered at the new Besser School has been given since shortly after World War II in a special room at the Besser plant. Although no definite date has been set for the completion of the new building, it is expected that work will start soon. In architectural style, the building is to resemble Independence Hall in Philadelphia.

Before proceeding with the groundbreaking, Mr. Besser introduced 20 of the company's young executives, department heads and specialists. These were the following:

Elroy Boboltz, vice-president; Del Fox, sales manager; Joe Pinson, service manager; Bob Hastie, advertising manager; Ray Bailey, purchasing manager; Fred Burnett, vibrapac agreements; Clem Mason, service to builders; Carl Olson, materials and methods department; Karl Nensewitz, aggregate analysis; Gerald Krueger, personnel manager; Weir Gresham, electronics engineer; Jack Lapine, block and mold design; Pete Cruzen, Dick Boboltz, Don Knechtel, Charles Staton and Percy Snider, all of the machine design department; Herman Wagner, plant superintendent; Grant Benjey, master mechanic and Harold Nicholson, prestressed block.

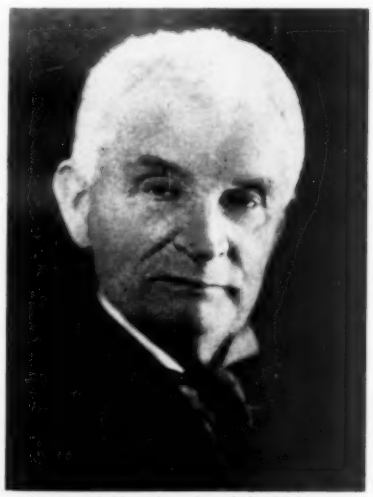
Rinker Wields Silver Spade

The first spadeful of earth for the new school was turned with a silver spade in the hands of M. E. "Doc" Rinker, N.C.M.A. president. Others who wielded the spade and spoke briefly were E. W. Dienhart, executive secretary of the N.C.M.A.; John T. Pennachetti, president of the National Concrete Products Association of Canada, William G. MacDonald of the Huron Portland Cement Company and Dr. Russell Wilson, superintendent of the public schools of Alpena.

In tracing the history of the Besser Manufacturing Co., Mr. Besser believes that the fact that his father, Herman Besser was a pioneer in the cement business, influenced the development of the first block machine.

Why Alpena Was Chosen

"Although the concrete block machine business really started in 1904," Mr. Besser said, "the particular reason for starting in Alpena was because a number of Alpena lumbermen, including my father, started the old Alpena Portland Cement Co. at that time. So it was just one more step to start making machines to help get the best use from cement."



Herman Besser, founder of the company

With the first Besser block machine, a hand tamp machine, with vertical cores, three men working diligently could turn out 200 block in a 10-hr. day. Today's improved Vibrapac makes 10,000 block in an 8-hr. day.

The next advance was a power tamper in 1909 with a capacity of 600 block per day. Then in 1914 what was known as the Automatic Face-Down Machine was introduced and block production was stepped up to 1800 per day.

Turning Point in Industry

A turning point in the block machine industry came with the development by Besser of the first plain pallet stripper tamper, making it possible to use a single set of pallets for all desired shapes and sizes of that block period. This advance enabled one machine to turn out 3000 block in an 8-hr. day.

"The concrete block industry expanded by leaps and bounds in the years from 1924 to 1939," Mr. Besser pointed out. "The automatic plain pallet stripper tamper should receive full credit for being a major factor in the development of the block industry as we know it today," Mr. Besser said. "It helped to establish a large number of good plants everywhere — plants that were giving important service to their respective communities by supplying building material that commanded respect and popular acceptance."

Lightweight Aggregates Come

It was during this period that the first cinder aggregate block were made followed by such lightweight aggregates as Haydite, Waylite and various natural lightweight aggregates.

"The plain pallet stripper tamper," Mr. Besser pointed out, "used all these various materials in addition to sand and gravel, and produced a wide variety of sizes and shapes including brick."

A revolutionary new development in Besser machines came in 1939 with the introduction of vibration under pressure to compact the concrete in the block mold. This brought into being the first Besser Vibrapac and a daily production of 5000 block.

Mr. Besser emphasized the importance of three new developments incorporated into the Vibrapac machines from 1939 to the present time. These, he said, have increased the machine capacity from 5000 block to 6000 to 7500 and up to 10,000 block per day, with promise of 15,000 block per day by using a double-size pallet and making six block at a time.

Lists Major Advances

These major advances were enumerated: (1) electrically-controlled height and density of block; (2) development of the off-bearing hoist; and (3) adoption of front pallet feed.

About 1000 Vibrapac machines were in service at the beginning of 1954,

(Continued on page 131)

RADIO Offers Many Advantages to the Ready-Mixed Concrete Industry

22. A producer views the ready-mixed concrete business . . .

By JAS. A. NICHOLSON*

WHEN WE MADE OUR 1952 APPLICATION for Industrial Radio Service, use of radio by the ready-mixed concrete industry, except in sparsely settled areas, was limited to construction work of a public character. We first obtained a license that was so restricted. We then appealed to the F.C.C. asking for permission to make full use of contemplated radio facilities. Fortunately, on May 13, 1953, the commission changed its rules which, among several modifications, permitted ready-mixed concrete producers, operating in Standard Metropolitan Areas of less than 500,000 population, the right to use industrial radio systems without territorial restrictions of any kind.

Thus on May 13, 1953, a dynamic new tool to control deliveries of concrete became available to most producers. As of that date only ready-mixed concrete operators, who had their places of business located in one of the 33 heavily populated communities (over 500,000) were forbidden the full use of radio facilities. In 24 of the states there were no such restricted communities. In the remaining states only a comparatively few metropolitan producers were still "blacked out." By this recent F.C.C. decision, a new era of operations control opened generally to alert progressive members of our industry.

Applying For and Holding A License

In petitioning for the use of radio, we prepared our license application with the help of Bell Telephone Co. service engineers. We also received considerable assistance from field representatives of a radio manufacturer. There was our letter to the F.C.C. to prepare. There was form 401, requiring the filling out of some 30 sections. There was our statement in which we fully explained (see No. 25 of F.C.C. form 401) why the proposed radio station would be in the public interest, convenience or necessity. Although the preparation of a radio license application is not overly complicated, I do recommend that similar assistance be obtained by all producers seeking to qualify for a license.

Form 401 develops such pertinent information as: applicant's type of organization — individual, partnership or corporation; if corporation—names of stockholders holding and voting 10% or more of the stock; number of stations required — fixed, mobile and portable; whether application covers new stations or changes in present radio facilities; whether applicant has an interest in other radio stations; whether applicant is to be owner or lessee of radio system; proof of owner's financial ability to build and operate radio system; frequency requested and particulars of proposed operations; and description and location of proposed transmitting apparatus.

The statement covering Section No. 25 should set forth in detail the nature of applicant's operations, participation in important work of public and private utility construction; explanation of advantages accruing, through the use of radio, to government and the general public, possible savings in road use (e.g. — fewer trips, trucks re-routing), improvements of service that would develop, and listing of volume production jobs on which you are servicing and bidding. The statement should clearly point out how the general public will benefit by use of radio in controlling delivery operations. You should take this opportunity to show that you fully appreciate the responsibilities involved in operating an industrial radio system.

If the application for a license calls for the establishment of remote control points at several concrete plants, pertinent information covering location, plan of operations and air miles between control points should be given. It is important that an adequate drawing or map be provided.

In our application, we asked for a land transmitter with a remote control console at one plant and remote control points at our other three plants. We set forth that we would use available wire facilities of the telephone company in maintaining contact between the remote control units. Such an arrangement will efficiently handle the operations of a multiple-plant producer.

In accompanying memorandum, we explained our reasons for using remote control points in preference to all dispatching points. We specified that a licensed radio-telephone operator would always be on duty whenever and wherever we attempted to remotely operate the land transmitter. We stipulated that no unauthorized persons would ever have access to any of the remote controls. We agreed to maintain a station log at each of the control points.

Application for licenses must be sent in duplicate, directly to the Federal Communications Commission, Washington 25, D. C. On one copy a notary seal is required. Any information already on file with the commission need not be refiled provided that the petitioner supplies sufficient information for the commission to readily secure the previously filed papers. Applications should be prepared in triplicate if request is being made for an antenna height exceeding 170 ft. or one that is in conflict with the established landing area.

In planning to install radio facilities, realize that it takes the F.C.C. generally 2 to 4 months to process a license application. After the license is obtained approximately 60 days are required for equipment delivery. Actual installation of the system, including mobile units, requires an additional ten days. As truck-down time of approximately 4 hr. per truck is involved, installation in slow production months might be preferable.

If your application is approved you are sent (on F.C.C. Form 400) a construction permit and license for both the base station and allotted number of mobile units. A statement on the form advises you both as to date the authorization becomes effective as well as when it expires. The frequency is specified, and you are given two call signs for identification; one for base calls, the other for mobile units. Two file numbers, to facilitate handling by the commission are also assigned. Before using the radio you are required t. notify your area's District F.C.C. Office that the allotted radio system is going into service on a given date. The notice to the district office can be prepared on F.C.C. Form No. 456 or may be made by a letter signed by the permittee as his name appears on the license.

Safeguarding Radio Privileges

A radio-using producer should understand the rules and regulations governing radio operation and know what matters go to the F.C.C. office and what points should be handled at the district level. The producer should be informed as to limits of conversation that are permitted on the air and should understand what is expected of his employes and himself in order to keep his license in good standing.

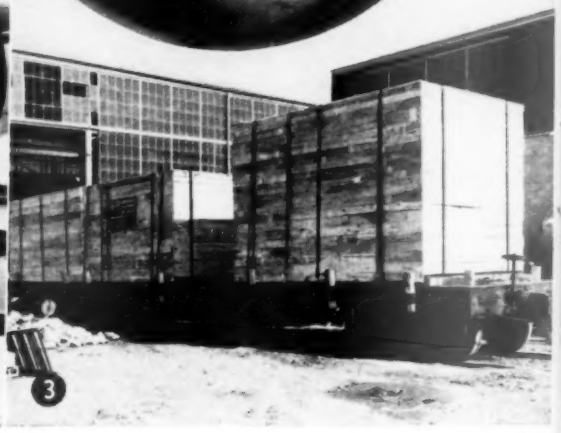
In safeguarding his radio privileges, a producer should (a) make full use

(Continued on page 133)

*Pres., Nicholson Concrete Co., Toledo, Ohio.

BESSER SERVICE *is World-wide*

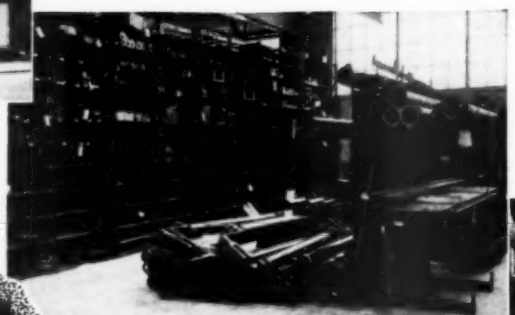
Here is Jack Franklin, District Manager of the Besser New York office. Similar offices are maintained in ten other metropolitan areas.



1. Besser representative arriving by plane to render prompt service.
2. Loading urgently needed parts into plane for some far-away destination.
3. Export-boxed VIBRAPAC leaving the Besser plant for foreign service.
4. One of several Besser Service Parts Warehouses. This one is located at Buffalo, N. Y.

Besser Service knows no

From any part of the world, where Besser VIBRAPAC Machines are operating, any call for service gets prompt action. Besser servicemen are ready to travel by air, by rail, by car or by steamship... to take care of urgent service requirements.



Illustrations above and at right show Besser factory storerooms well stocked with service parts and attachments.

BESSER
50th Anniversary
1904-1954

...a Half Century of Concrete Masonry Progress

Coast to coast... and in many foreign countries... Besser provides unequalled service facilities... to help VIBRAPAC Block Plants maintain rigid schedules!

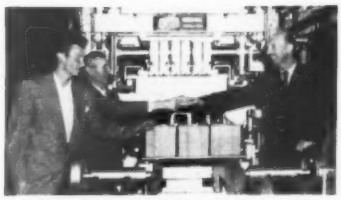
District Manager L. G. Galloway, in Chicago's Civic Opera Building, maintains close liaison with Vibrapac plants in his territory.

Step into any VIBRAPAC block plant and see high-quality block made automatically. Notice there are no lost motions and no time is wasted. Pallets and mixed materials are fed automatically. As block are completed, they are quickly transferred to the racks. No manual lifting. Off-bearer merely guides the power hoist.

geographical boundaries

The Besser Manufacturing Company maintains eleven district offices, strategically located throughout the United States . . . warehouses with stocks of parts and attachments in three cities . . . and factory-trained representatives ready for prompt and efficient service . . . anywhere.

In addition, Besser representatives and servicemen make regularly scheduled check-up calls on VIBRAPAC Block Plants . . . to anticipate, as far as possible, the immediate and future service requirements of any plant equipment. World-wide sales are matched by world-wide service . . . dependable Besser Service that block plant operators appreciate.

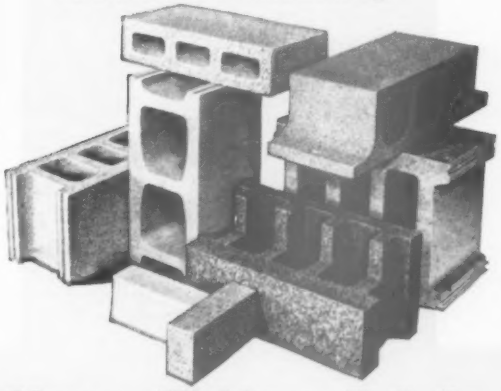


Visitors come to the Besser Plant at Alpena, from all over the world. Here Lofter Jansson and Jon Loftsson of Reykjavik, Iceland greet John G. Wortherspoon of Adelaide, Australia.

If you want to produce high-quality block, on a fast production basis and with a minimum of "down-time", you can safely entrust the job to VIBRAPAC machines, backed by Besser service.

VIBRAPACS are VERSATILE

The flexibility of the Front Pallet Feed Vibrapac, and the advantage of the original Besser principle of making all sizes and types of block on one set of Plain Pallets, permit Vibrapac plants to supply a wide variety of block for the entire building.



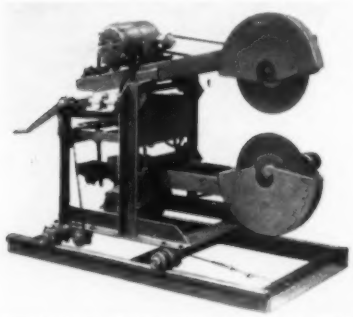
BESSER MANUFACTURING COMPANY • Alpena, Michigan, U. S. A.

J 3495

NEW MACHINERY

Double-Headed Saw

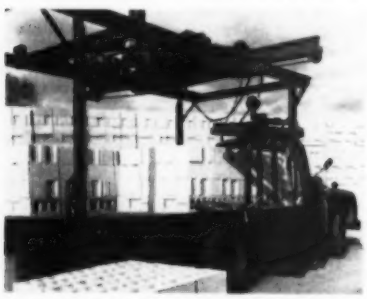
MID-WEST CONCRETE PIPE CO., 9301 W. Grand Ave., Franklin Park, Ill., has developed a two-headed saw to expedite cutting plain and steel reinforced slabs, pipe, block, etc. One blade cuts from the bottom, the other from the top, permitting the use of a smaller and thinner carborundum blade. The entire blade can be used, rather than discarding it when it will no longer penetrate to the proper depth. Each blade is adjusted and operated independently of the other. Complete cuts can be made in a one-pass operation by adjusting the blades close to one another. If desired, the blades can be left apart and each side scored or cut through the reinforcing steel only, thus enabling the operator to break the material scored at this point.



Saw has two blades, permitting use of smaller and thinner carborundum blade

Concrete Block Unloader

YORK STONE & SUPPLY CO., Roosevelt Ave., York, Penn., has brought out a truck for hauling concrete block, featuring a Side-O-Matic unloading device, which can unload on either side of the truck or at the rear. An aluminum fork fits into the bottom row of a cube of 72 8-in. block, lifting the entire cube off the truck at one time. This eliminates the need for recubing in the yard, and is said to eliminate broken corners. The unloading mechanism consists of a carriage which travels back and forth on a track; a boom which rotates 360 deg.; a trolley which moves back and forth on the boom; and a lift which raises and lowers the fork. These four movements are powered by electric motors, the current being furnished by a generator operated off the power take-off. The switch plate is magnetized and can be placed on the fork, the metal body, or carried by the operator. The unloading device is adaptable to any size truck or trailer.



Aluminum forks fit into block, unloading a cube of 72 8-in. block at a time

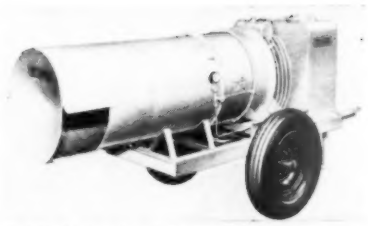
Block Splitting Unit

FLEMING MANUFACTURING CO., 800 Fleming Ave., Cuba, Mo., has introduced the Flemi-Stone block splitting machine capable of handling 24- x 8-in. block, at the rate of 840 cycles, or cutting strokes per hr. The cutting head is controlled by two precision machined cams mounted on machined shaftings to provide uniform operation. Variable height control is achieved through the use of two 1¾-in. precision machined steel guide shafts with square threads and heavy lock collars. The unit is powered by a three-phase, 60-cycle gear-in-head motor with a 38:1 reduction. Additional reduction in the ratio of 3.2:1 is obtained by a chain and sprocket assembly. The machine is 5 ft. x 40 in. x 36 in., and weighs 1025 lb.

Machine handles 24- x 8-in. block at a rate of 840 cutting strokes per hr.

Portable Heater

BESLER CORP., Oakland, Calif., has announced the Bes-D-Frostr, a portable blower type heater for drying and curing concrete, plastering, masonry and paint. It is also designed for heavy duty outdoor drying such as highways, concrete ditches, culverts and foundation work. The heater has an axial fan, and is available powered by a gasoline engine or an electric motor. It has a shielded flame for operation in close quarters, and is said to require no preheating. It produces from 1,000,000 to 4,000,000 B.t.u. per hr., and requires no flue. The unit may also be used for thawing frozen building materials, pipes, and for preheating engines and equipment, as well as providing temporary heating for personnel.



Mobile heater for drying and curing concrete

Cylinder Curing Can

E. W. ZIMMERMAN, 228 N. LaSalle St., Chicago, Ill., has developed the Acme Curing Can, designed to provide controlled humidity and temperature for field curing concrete test cylinders, functioning similarly to a thermos bottle. For summer curing, it is said to provide 100 percent humidity at a more evenly controlled temperature. For winter curing it helps protect the cylinder from adverse winter temperatures. The bottom of the container has a flowed-in gasket to insure a complete seal when the top is in place. The specially designed liner has a K factor of .4 in. dry form, for insulating purposes. The liner also permits an absorption of from two to four quarts of water with a 60 percent retention at seven days.

Truck Mixer

BLAW-KNOX CO., Construction Equipment Dept., Pittsburgh, Penn., has developed a truck mixer available in 5½- and 6½-cu. yd. sizes. The mixer engine is at the rear and the mixer transmission is mounted on the side of the combination flush water tank and front pedestal, to reduce the distance from the front of the mixer to the center of gravity 20 inches, thus permitting more even weight distribution on the truck chassis and allowing the use of a short wheel base truck. Facilities have been incorporated for fast charging and discharging, and complete mixing of slump concrete.

Distance from the front of the mixer to the center of gravity has been reduced 20 in.

Ready-Mix Annual Survey

THE NATIONAL READY MIXED CONCRETE ASSOCIATION has announced the results of its third annual survey of ready-mixed concrete production and value. The survey is a continuation of the association's effort to fill the need for a reliable measurement of the contribution which the ready-mixed concrete industry makes each year to the national economy. The report of the 1953 survey, from which the following statistics were taken, was prepared by Kenneth E. Tobin, Jr., assistant executive secretary of the association. Questionnaires were sent to 1791 ready-mixed concrete companies in the United States, of which 579 are active association members. Returns were received from 891 companies, composing 457 member companies and 434 non-members. In addition to the 891 returns, statistics were also available on 122 members who did not return the questionnaire. These additional statistics were incorporated in the study, making a total of 1013 companies.

Total production of the participating companies amounted to 53,404,513 cu. yd., valued at $636,482,350, with an average value of $11.92 per cu. yd. The reporting producers used more than 36,000,000 tons of sand, almost 53,000,000 tons of coarse aggregate, and over 71,000,000 bbl. of portland cement. The average production was 52,719 cu. yd.; the median production was 25,785 cu. yd. Average consumption of portland cement per cu. yd. of concrete was 1.33 bbl.; average consumption of sand, 0.67 tons per cu. yd.; and average consumption of coarse aggregate, 0.98 tons per cu. yd.

Analysis of the distribution of ready-mixed concrete production in 1953, by size of company, showed that the largest number of companies are in three brackets. Of the 1013 companies reporting, 185 were in the 0-10,000-cu. yd group and were responsible for 2.1 percent of the total production; in the 10,000-20,000-cu. yd. group, 220 companies, responsible for 5.9 percent of total production; and in the 20,000-30,000-cu. yd. group, 169 companies, accounting for 7.8 percent of total production. Nine companies produced over 500,000 cu. yd. of ready-mixed concrete last year, accounting for 14.1 percent of total production.

The total number of truck mixers or agitators operated by the 891 reporting companies (these figures are not available for the 122 companies whose statistics were otherwise available) was 12,705, representing an average of about 14 units per company. Proportioning plants were reported by 635 companies, which have 1802 such plants in operation, at an average of 1.7 per company. Central mixing plants were reported by 329 companies, which have 431 such plants in operation, at an average of 1.3 per company. The average number of mixers or agitators per plant reported

(Continued on page 128)

Table I—Ready Mixed Concrete in 1951, 1952 and 1953

	1951	1952	1953
Companies surveyed	1635	1625	1791
Companies reporting	691	942	1013
Production (cu. yd.)	37,760,191	49,169,443	53,404,513
Total value	$424,136,796	$564,861,162	$636,482,350
Portland cement (bbl.)	50,873,199	62,297,152	71,082,222
Sand (tons)	27,218,748	29,844,257	36,064,847
Coarse aggregate (tons)	35,911,177	46,290,076	52,452,610
Average production (cu. yd.)	54,646	52,197	52,719
Median production (cu. yd.)	27,400	26,455	25,785
Average value (per cu. yd.)	$11.23	$11.49	$11.92
Average portland cement (bbl. per cu. yd.)	1.35	1.27	1.33
Average sand (tons per cu. yd.)	0.72	0.61	0.67
Average coarse aggregate (tons per cu. yd.)	0.95	0.94	0.98

Table II—Ready-Mixed Concrete Distribution by Size of Company

1953 Production (cu. yd.)	No. of companies	Cu. yd. produced	Percent of Production	Percent of Participating companies
0-10,000	185	1,141,205	2.1	18.3
10,000-20,000	220	3,150,533	5.9	21.7
20,000-30,000	169	4,168,774	7.8	16.7
30,000-40,000	87	3,029,793	5.7	8.6
40,000-50,000	74	3,266,174	6.1	7.3
50,000-60,000	55	2,962,281	5.5	5.4
60,000-70,000	37	2,394,798	4.5	3.7
70,000-80,000	33	2,454,760	4.6	3.2
80,000-90,000	26	2,222,195	4.2	2.5
90,000-100,000	13	1,244,922	2.3	1.3
100,000-125,000	35	3,879,593	7.3	3.4
125,000-150,000	14	1,997,821	3.7	1.4
150,000-175,000	13	2,108,779	3.9	1.3
175,000-200,000	10	1,887,906	3.5	1.0
200,000-250,000	8	1,852,415	3.5	0.8
250,000-300,000	11	2,964,998	5.6	1.1
300,000-400,000	10	3,376,117	6.3	1.0
400,000-500,000	4	1,797,985	3.4	0.4
over 500,000	9	7,513,464	14.1	0.9
Totals	1,013	53,404,513	100.0	100.0

was 8.4. The participating companies reported 1604 non-agitating units in operation, at an average of 1.8 per company.

New Pipe Company Formed

CEN-VI-RO PIPE CORP. is a new company recently formed by Morrison-Knudsen Co., Inc., Boise, Idaho, in conjunction with Raymond Concrete Pile Co., New York, N. Y., and George R. Jessen, Salt Lake City, Utah, to manufacture specialized, rubber gasket joint pipe. The new company, which was acquired and reorganized from the former Cen-Vi-Ro Manufacturing Corp., Nampa, Idaho, will have its headquarters at South Gate, Calif., where it will produce both the pipe and the pipe-manufacturing equipment.

The company's product, reinforced concrete pressure pipe, is produced by a patented centrifugal, vibrating and rolling process from which the company's name is derived. The pipe will be produced in 12- to 84-in. diameters and in lengths from 8 to 16 ft. Both low-pressure pipe, capable of withstanding pressures up to 54 p.s.i., and high-head pressure pipe, resistant to pressures up to 300 p.s.i., will be produced. J. B. Bonny, vice-president and general manager of Morrison-Knudsen, is president of the newly formed corporation.

Masonry Reference Manual

THE NATIONAL CONCRETE MASONRY ASSOCIATION has announced publication of a "Reference Manual for Contractors, Builders, Masons." The manual brings together, in a handy, compact, reference form, recommended procedures for the building of masonry walls, supporting floor and roof loads, attaching plates, setting door and window frames, sills and lintels, concrete masonry construction for unusual stress conditions, use of control joints and back-up uses, information on application of concrete masonry wall finishes, and several estimating tables to speed the work of mason contractors.

PROPER WEIGHT DISTRIBUTION

...So you can haul
MORE LEGAL PAY LOAD on SHORTER WHEELBASE TRUCKS
with 5½-cu. yd. and 6½-cu. yd.

BLAW-KNOX *Hi-Boy* TRUKMIXERS

NOW you can really put the profit show on the road! With the newly designed Hi-Boy Trukmixer you can *legally* haul a half yard more than the normal rated capacity. That extra pay load is the result of proper weight distribution.

By moving the mixer weight forward 20 inches, you utilize more of the legal weight allowance on the front axle. You can get the show on the road quicker, too, because the big inner cone and the design of the blades permits faster charging and discharging.

PEDESTAL AND FLUSH WATER TANK COMBINED to reduce weight approximately 1000 lbs. and substantially lower the center of gravity of the loaded mixer.

TRANSMISSION LOCATED AT SIDE of pedestal-tank combination reduces cab-to-rear-axle dimensions by 20" and permits easy access even with close clearance between mixer and cab. A single lever controls drum rotation through oil-type multiple disc clutches.

ENGINE LOCATED AT LEFT REAR assures maintenance convenience and easy access to vital parts for periodic attention. Inexpensive, easily cleaned air filter protects radiator. Engine fully visible to driver when backing.

BEST WATER MEASURING SYSTEM AVAILABLE. Measures by meter (set for any quantity to 1/10 gallon.) Measured volume accurate to ½ of 1%. Shuts off automatically when the required quantity is reached.

LARGE DIAMETER SHORT DRUM mixes even zero slump concrete fast and thoroughly. Guaranteed to mix ½-cu. yd. over the normal rating to the most exacting specifications. Special design of drum opening enables the 5½-cu. yd. Hi-Boy to carry 7 cu. yds., and the 6½-cu. yd. Hi-Boy to carry 8¼ cu. yds. of 6" slump concrete on a 10% grade without spillage.

It's impossible to list here the many practical, profitable features of these new Hi-Boys. Ask your Blaw-Knox distributor to give you the complete story.

BLAW-KNOX COMPANY
BLAW-KNOX EQUIPMENT DIVISION
PITTSBURGH 38, PA.
Offices in Principal Cities

See Your BLAW-KNOX DISTRIBUTOR Today

ASK ABOUT THE *"Complete Ready-Mix Package"*

Research Report

THE ARMOUR RESEARCH FOUNDATION of the Illinois Institute of Technology, Chicago, Ill., has announced the publication of its 1953 annual report, covering over $10,000,000 worth of research work performed by the foundation for industry and government. This record volume of research was 25 percent over the 1952 figure, and includes 467 different research projects, or 70 more than in the previous year.

Other research projects covered in the 68-page, illustrated report include: Sound absorption of acoustical materials, high-temperature x-ray diffraction studies of ceramic materials, and development of new techniques in stress analysis, all sponsored by the foundation; improvement in building brick, sponsored by Mason City Brick and Tile Co.; lightweight concrete aggregate from coal refuse, sponsored by the United Electrical Coal Companies; ceramic lightweight building block for low-cost housing in Saudia Arabia, sponsored by Arabian American Oil Co.; cement mortar mixes containing polyvinyl acetate emulsion, sponsored by E. I. du Pont de Nemours & Co.; lightweight concrete aggregate from Georgia clay, sponsored by Merry Brothers Brick and Tile Co.; lightweight concrete aggregate from coal mine wastes of Peerless Coal and Coke Co.; improving brick made from Chicago-area variable clays, sponsored by National Brick Co.; continued research on the "SCR" brick, sponsored by the Structural Clay Products Research Foundation; a sperulized lightweight ceramic aggregate of small grain size, known as "kanamite," developed for Kanium Corp.; stabilization of lime for use as a refractory, sponsored by National Gypsum Co.; a study of the sensitivity of an explosive, sponsored by the Ordnance Corps; dust studies in connection with underground explosion tests, in connection with the Underground Explosion Test Program conducted by the U. S. Army Corps of Engineers; manganese recovery from open-hearth slag and low-grade ore, sponsored by the American Iron and Steel Institute; development of improved mining equipment; abrasion-resistant rods for rod mills; vibration isolation properties of Fiberglas, for Owens-Corning Fiberglas Corp.; engine exhaust noise levels of the over-the-road trucks, sponsored by the American Trucking Association; and reduction of industrial noise, conducted for the National Association of Mutual Casualty Companies.

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CONCRETE SAFETY PRODUCTS, INC., Wichita, Kan., manufacturer and dealer of concrete items, has been incorporated with $50,000. Resident agent is Richard F. Mullins.

THE A B C CONCRETE CO., INC., Dallas, Texas, was recently incorporated with $5000. R. A. Cantrell, Harold L. Van and P. W. Huffings are the incorporators.

Anniversary Celebration

(Continued from page 122)

including those in foreign countries. One of the original 1939 Vibrapacs is still in daily use in a Philadalphia plant.

In addition to block machines, the Besser plant is now producing: batch mixers from 5-cu. ft. to 75-cu. ft. capacity; skip loaders, used to charge the mixers in sizes from 25 cu. ft. to 75 cu. ft.; multi-mold hand tamp machines, made since 1930, and sold in foreign countries; pallet cleaning machines, electrically operated; Beslite sintering machines; Besser bridge crane block cubers; and the Besser company is exclusive sales agent for the Bes-Stone block splitting machine which is made outside the Alpena plant.

Vibrapac machines and block plant accessories represent about 75 percent of the company's annual volume of business; sale of replacement parts represents about 25 percent of the volume.

The company moved into the present modern plant in 1914. It had formerly been occupied by the Alpena Motor Car Co.

During eight of the last 13 years, the Besser Manufacturing Co., has helped to produce vital war material. On October 9, 1945, Mr. Besser accepted, on behalf of the employes and the company, the coveted Army-Navy E Award for its work on arms production during World War II.

Machines in Foreign Service

There are 122 Besser Vibrapac block machines in service today in 28 foreign countries. These machines are being operated by 80 different companies. Thirty plants in Canada have Besser machines. The next largest number in use outside the United States is 11 in Venezuela. A Besser Vibrapac is on the way to Korea to be used in making concrete block for the rebuilding of Pusan and Seoul. Much of the European war damage was repaired with block made on Besser machines.

Ralph Bailey is export sales manager. In the year 1953, Besser sales representatives from the Alpena plant visited 27 different countries, traveling 150,000 miles by air. Eighteen Besser representatives are located permanently in foreign countries. Vibrapac machines are in use in the Philippines, Columbia, Brazil, Panama and Argentine. They are also being operated in New Zealand, Australia, South Africa and India, and in Arctic climates such as Alaska and Iceland.

How Industry Is Served

Among the Besser contributions to the concrete masonry industry is the company's Materials and Methods Service, headed by Carl Olson. The service available to block producers includes help in designing a plant or, if desired, a complete plant layout. Design formulas for concrete mixtures to produce durable block with all

types of aggregates are furnished on request.

"We will do whatever we can to help any block maker overcome difficulties in plant operation," Mr. Besser said. "Our service is immediate when any plant is in serious trouble. We fly a service man from Alpena to the block plant and the service man stays long enough to see that the difficulty is actually overcome."

Mr. Besser believes that the constant increase in the productive capacity of Besser block machines has kept pace with the growth in demand for concrete block. That, he believes, has helped hold down the cost of construction with concrete masonry.

The importance of improving the quality of concrete masonry construction cannot be over-emphasized, Mr. Besser believes. He contends, with some force, that some means of closer inspection on all concrete masonry projects should be established to insure adherence to specifications and insure durability and attractive appearance.

Officers and key personnel of the Besser Manufacturing Co. are: J. H. Besser, president and general manager; Mrs. J. H. Besser, vice-president; F. C. Burnett, secretary; M. P. Rosenthaler, treasurer; E. C. Boboltz, vice-president; P. M. Parks, vice-president; R. M. Douglas, plant manager; Haaken Paulson, distribution manager; D. R. Fox, general sales manager; R. F. Bailey, purchasing agent; Joe Pinson, service manager; R. G. Bailey, export manager; R. F. Hastie, advertising manager; Herman Wagner, plant superintendent; Gerald A. Krueger, personnel manager; Howard M. Davis, administrative engineer; Carl Olson, materials and service; Clem Mason, architect and builder service; R. Steward, chief metallurgist; Robert Jorden, plant protection chief; John Stark, patent attorney and H. H. Nicholson, prestressed block.

Prestressed Concrete

OHIO CONCRETE PRODUCERS, engineers, architects, contractors and other in the construction field recently had an opportunity to hear Dr. Paul W. Abeles, London, England, give two lectures on prestressed concrete, "The Principles of Prestressed Concrete," and "Some Practical Applications." The lectures were held at the Ohio State University, under sponsorship of the Department of Civil Engineering and the Graduate School. Dr. Abeles is a consulting engineer, author of numerous technical publications on concrete, and also lecturer on prestressed concrete for graduates at the Brixton School of Building, London.

•

F & S INC., Kansas City, Kan., concrete and building materials firm, has been granted a corporation charter. Capitalization was authorized at $1-000. Norman A. Fordyce is resident agent.

Radio Advantages

(Continued from page 123)

of his assigned frequency (use to the maximum efficiency is a producer's most valid claim to a frequency allocation); (b) make certain of full compliance with F.C.C. regulations on periodic frequency checks, service by licensed technicians, maintenance log and operating log; (c) prevent the use of obscene language or handling of communications not connected with the business. The radio should not be used to provide any form of entertainment, convey messages not connected with the business enterprise or intercept communications not intended for the licensee.

There are fundamental F.C.C. rules which apply to a radio system's operation. Receipt of an F.C.C. construction permit is a necessary prerequisite to any starting and installing of radio facilities. To qualify as permittees of a station license, an individual, all partners and four-fifths of corporation stockholders (determined by value of shares held) must be U. S. citizens. Industrial radio stations cannot be used as Common Carrier activities. A licensee cannot charge for sending a communication. The radio system should only be used to convey messages that are essential to the efficient operation of the business for which the frequency is authorized. Communication should only be between authorized mobile units, and to (and from) the base station associated with the the system. If dire emergency requires communications with other systems the F.C.C. must be promptly notified. A form of operating procedure should be established to restrict communications to minimum transmission time. Radio facilities between permanent locations should not be used if wire or Common Carrier facilities are available.

The base station operator and all operators at remote control points (dispatcher at each ready-mixed concrete plant) must have Restricted Radio Telephone Operators Permits. These permits are obtainable at the nearest F.C.C. District Office. The base station operator is required to record pertinent happenings such as time station "went on and left" the air, personnel changes, etc. A maintenance log is required for accurately recording repairs on base and mobile units and to make notations on T.F.M.'s (frequency checks required every six months by F.C.C.) To properly identify each unit and the radio system, an identification card is required for each mobile and permanent transmitter. The base station operator is required to identify the base station after each transmission or at every 15 min. period by announcing the stations "call letters." Similarly each mobile unit must have some form of standard code number or other recognizable identification.

In an effort to more adequately protect the privilege of using this new control tool, a number of industrial

radio users retain the services on an annual, rather nominal fee basis, of a competent (practicing regularly before the F.C.C.) attorney. This legal representative assumes responsibility for keeping the radio station license in good standing, handles any additional application work that may be required, advises on questions that may arise and, in general, attempts to be helpful should any grief develop in radio operations. Some producers believe that they can depend entirely on advice supplied by the National Ready Mixed Concrete Association. Other operators feel that they get worth-while assistance through membership in the Special Industrial Radio Service Association.

This association has the following stated purposes:

(1) Work to prevent any possible encroachment by other radio users upon presently allocated frequencies and for the expansion of these frequencies to meet legitimate radio needs in the future.

(2) Coordinate the assignment of present frequencies to insure equitable distribution and minimum interference between users.

(3) Make advisory recommendations to the Federal Communications Commission concerning rules covering industrial radio service if commission requests and approves such advisory recommendations.

(4) Issue periodic bulletins advising members of legislative and technical developments affecting their radio systems.

Producers who are now using radio in controlling delivery operations can get additional information by contacting the Special Industrial Radio Service Association, 600 Munsey Building, Washington, D. C.

Simply on the basis of my limited radio experience, I suggest that until our own association adopts a policy of continually and aggressively studying, facing and reporting all F.C.C. radio proceedings and developments, producers should either retain the service of an F.C.C. lawyer or become a member of the "radio user" group.

(To be continued)

Nebraska Masonry Meeting

THE NEBRASKA CONCRETE MASONRY ASSOCIATION was recently host to guests from Kansas, Missouri and Iowa at a joint meeting in Lincoln, Neb. Fifty-five people were in attendance. Principal speaker on the program was S. H. Westby, manager, Housing & Cement Products Bureau, Portland Cement Association, Chicago, Ill. He gave an informative talk on the campaign of the magazine, *Living For Young Homemakers*, to interest builders in submitting cost figures on a concrete masonry house, as drawn up by G. Hugh Tsuruoka, P.C.A. architect.

Tip Brown, secretary-manager, Mo-Kan Concrete Products Association, Kansas City, Mo., gave a resume of the Unit Masonry Association organ-

ization which has met with outstanding success in the Pacific Northwest and which is being studied by other interested groups for setting up similar regional organizations.

Following the business session, the Nebraska association was host to the group at a dinner. Wallace Lilley, Tremont, Neb., recently elected president of the association, was the presiding officer.

Opens New Research Center

THE MARIETTA CONCRETE CORP., Marietta, Ohio, recently announced the opening of its new research and product development laboratory at its main plant in Marietta. The new laboratory is housed in a one-story building containing about 1000 sq. ft. of floor area, and includes two offices and laboratory facilities for testing the company's raw materials and finished products. The walls of the building consist of "Styrofoam" insulation, sandwiched between two layers of pneumatically-applied concrete.

The new laboratory is being used to maintain continuous control of quality during manufacturing operations in the company's lightweight aggregate, "Beslite," and in its precast wall panels, industrial and farm silos and other concrete products. Also currently underway is a research project for the development of a special facing of various textures and colors for its precast wall panels. Robert B. Hindman has been appointed director.

The new laboratory is part of an extensive expansion program that also includes the establishment of a new plant at Bowling Green, Ky.; modernization and expansion of its Charlotte, N. C., plant; its new plant recently opened at Hollywood, Fla.; and acquisition of The Concrete Manufacturing & Supply Co., Nashville, Tenn.

Walls of laboratory are constructed of Styrofoam placed between the studding, with concrete pressure-sprayed to each side to form a solid insulated concrete wall of proper thickness

SPICKELMIER CO., INDIANAPOLIS, INDIANA — Operating SIX SUPERLITE UNLOADERS with success Handling BLOCK, BRICK, CUT-STONE and other materials.

LEADING PRODUCTS MANUFACTURERS EVERYWHERE ARE REDUCING DELIVERY COSTS AND PRODUCT DAMAGE THROUGH THE USE OF SUPERLITE UNLOADERS

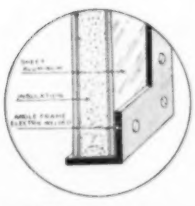
WRITE FOR INFORMATION

BUILDERS EQUIPMENT CO.

4012 N. CENTRAL AVE. PHOENIX, ARIZONA

Moore Carrier-Type Doors at Glynn Concrete Co., Brunswick, Ga.

Moore Metal-Insulated Kiln Doors Save Fuel—Reduce Curing Time



Keep heat where it belongs—inside the kiln—with Moore Aluminum-Insulated Doors. They improve curing conditions — save steam—last longer.

Send us dimensions of present door openings for quotation.

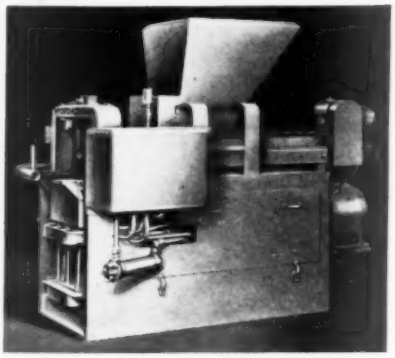
MOORE DRY KILN COMPANY

Oldest and Largest Manufacturers of Lumber and Veneer Dryers

JACKSONVILLE, FLORIDA · BRAMPTON, ONT. CANADA · VANCOUVER, B. C. CANADA · NORTH PORTLAND, OREGON

HYDRO-KORPAK

The Superfine Block Machine



At last comes a block machine of streamlined compactness, where high production is obtained by low labor costs, and where initial investment is in line with modest budgets. In design, operating efficiency, capacity range and price, the Hydro-Korpak is aimed to bring the production economies of advanced engineering within reach of average sized plants with normal sales potentials.

The Hydro-Korpak is marked by such outstanding features as 1-man operation . . . hydraulic movements . . . electrical controls . . . and the exclusive compacting principle of predensifying by core oscillation which gives a combination of vertical and lateral packing. Rugged but compact, with 2¼ tons of machine, completely self-contained, and dimensioned to occupy only 33 square feet of floor. Write at once for free descriptive literature.

CONCRETE EQUIPMENT COMPANY

K-1 **544 Ottawa Avenue • Holland, Michigan**

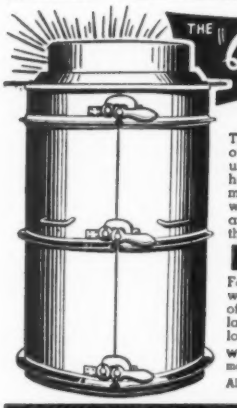
BES-STONE Block Splitter

Made in 2 Sizes — 18″ and 24″ Models — Produces 960 Split Block per Hour in Fast, Automatic Operation

Splits block in a straight line, with speed and precision and with the utmost safety. The block is placed under the knife automatically . . . the blade descends with a smooth, hydraulic action . . . and the split block is ejected by the incoming block. The operator is always at a safe distance. Machine is easily adjusted for various block heights. The 18″ model, shown here, splits block 16″ or 18″ long, 1⅝″ to 8″ high. A larger 24″ model splits any length up to 24″, heights up to 8″.

BES-STONE is a new masonry unit with a quarried stone appearance. Can be produced in many sizes and in a series of attractive, permanent colors. No conflict with conventional block. It complements and greatly increases sales of standard stripper block. Write for Bulletin.

BESSER MFG. CO. • Complete Equipment for Concrete Products Plants • Alpena, Michigan, U.S.A.



THE "Quinn Standard"

FOR CONCRETE PIPE

The Quinn Standard is known as the best the world over, wherever concrete pipe is produced and used. Backed by over 35 years' service in the hands of hundreds of Quinn-educated contractors, municipal departments and pipe manufacturers who know from experience that **Quinn pipe forms** and **Quinn mixing formulas** combine to produce the finest concrete pipe at lowest cost.

QUINN HEAVY DUTY PIPE FORMS

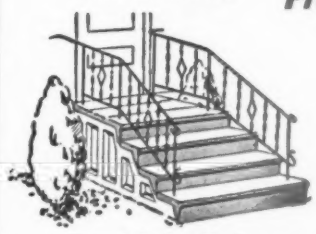
For making pipe by hand methods by either the wet or semi-dry processes. Built to give more years of service—sizes for pipe from 10″ up to 120″ and larger—tongue and groove or bell end pipe at lowest cost.

WRITE TODAY. Complete information, prices, and estimates sent on request.

Also manufacturers QUINN CONCRETE PIPE MACHINES

QUINN WIRE & IRON WORKS 1603 12TH ST. BOONE, IA

NOW MORE THAN 140 LICENSED MANUFACTURERS Producing



Patented

homeward Concrete STEPS

A Small Investment That Pays Big Dividends

Homeward all metal forms are precision built to produce a product that requires no hand finishing.

The exclusive franchise for your territory may still be open.

For Complete Information Write

ROGER F. WILLIAMS, Licensor

3420 S. W. 9th St. Des Moines (15), Ia.

Complete Details In Our NEW BOOKLET

PEP UP Concrete Block Production!

OSWALT SERVICE for Vibrapac Owners

gives a big lift to production and profit records, as proved in scores of plants.

OSWALT SERVICE is an investment that pays dividends in terms of maximum output, better plant efficiency, premium quality blocks, and lower operating costs.

Two patents have been allowed on Oswalt Improvements—one on the Synchronized Vibration, and the other on the Lug Link used in speed-up.

OSWALT ENGINEERING SERVICE CORP.

1335 Circle Ave., Forest Park, Ill. Phones: EStebrook 8-3666, FOrest 6-3898

WHERE TO BUY

A real opportunity for

CONCRETE YARDS

who can qualify . . .

Lakeland Engineering Associates' proven prestressed concrete product designs are now available for manufacturing under a LEAP exclusive franchise.

LEAP concrete products are made by the perfected pretensioning method in long casting beds and the exclusive designs include: Roof Slabs . . . Floor Slabs . . . I beams . . . tee beams . . . columns . . . piling . . . power poles . . . fence posts . . . lintels . . . sea walls . . . bleachers and other products.

LEAP designed products have longer spans, lower maintenance, better fire resistance, and lower "first-cost" than most conventional construction . . . which they will replace.

A LEAP Franchise supplies: Exclusive Product Designs . . . Manufacturing "Know-How" . . . Engineering Services . . . and Selling Techniques.

WRITE TODAY! . . .

. . . if you have the space . . . shipping and erection facilities . . . sales promotion ability and the financial responsibility to undertake a profitable prestressing yard operation.

LAKELAND *Engineering*
ASSOCIATES, INC.
LAKELAND, FLORIDA

F&A EQUIPMENT FOR SALE

6 Multiple Vibrator Cradles.
12 Air Vibrators.
12—6" Alum. Forms x 30'-0".
16—8" Steel Forms x 30'-0".
16 Clamps.
1 Mold Box For 2—8" Blocks.
1 Set Vibrators For Mold Boxes.

This equipment is in excellent shape and priced 25% below replacement cost.

Direct all inquiries to:

RINKER MATERIALS CORP.
P. O. Drawer 231, West Palm Beach, Fla.

WANTED

BLOCK GRINDER

To grind both sizes 8x8x16 light weight blocks. Advise condition, age, location and price. Box M-46 ROCK PRODUCTS, 309 W. Jackson Blvd., Chicago 6, Ill.

FOR SALE

SEPTIC TANK BUSINESS
Florida East Coast City

Established business complete with necessary equipment for manufacturing and installing 4 tanks per day and equipment for cleaning and servicing tanks and drainfields.

Includes 6 trucks, 3 equipped for handling tanks—4 trailers—2 Ford tractors with loading, grading, and digging attachments—5 tank moulds—boiler for steam curing—etc. $25,000.00.

P. O. BOX 622
ORMOND BEACH, FLORIDA

FOR SALE

Besser Super Vibrapac

Available for immediate delivery.

A-1 condition. Steam cleaned and painted.

8" attachment and height control.

BOX M-40, CONCRETE PRODUCTS, 309 W. Jackson Boulevard, Chicago 6, Ill.

USED BLOCK MACHINES

I have a rather complete line of used block machines located in different sections of the country, mostly plain pallet such as Fleming, Lithibar and Multiplex. Some Joltcretes and George machines, and some very excellent Columbia 2-2½ or 3 block machines which barely show any wear and are being replaced only due to the owners feeling the need for the 12 in. high mold box for specials on the new 1954 model Columbia. Also I keep track of "hot spots" or boom areas to set block plants and list some money-makers for sale.

MID-WESTERN CONCRETE EQUIPMENT CO.
Box 646, Mukwonago, Wisconsin

FOR SALE

JOLTCRETE & EQUIPMENT

1—No. 9 Joltcrete 45% void pallets, racks, turntables, air offbearer and mold boxes for the manufacture of 4", 8", 12" concrete and cinder block. This equipment is in excellent condition. Also spare motors and parts for the above equipment. Daily average production per 8 hr. shift in 8" equivalents was:

Concrete Units 4320
Cinder Units 5760

BOX M-31, CONCRETE PRODUCTS
309 W. Jackson Blvd.
Chicago 6, Illinois

ENGINEERING & INSTALLATION

MODERN HIGH PRESSURE DRUM CURING SYSTEMS

write or phone Worth 2-0415

SHORE ENGINEERING 322 BROADWAY NEW YORK N. Y.

FOR SALE OR LEASE

Complete Go Corp. King Block Machine Plant Equipment, including 75 ft. mixer, racks, pallets, lift trucks, and all attachments. Can be shipped anywhere. Less than one year old.

25% discount. TERMS.

RINKER MATERIALS CORP.
P. O. Drawer 231
West Palm Beach, Florida

FOR SALE

1,400 L.F. 6" Well Point Header Pipe, drilled, tapped and plugged at approximately 2 ft. intervals for swing connectors. $1.25 L.F.
150 ea. Swing Joint Connectors consisting of 2-way elbows, nipples, stop cock. $4.50 ea.
140 Well Point screen sections. $8.50 ea.

PRICE BROTHERS COMPANY
1932 E. Monument Ave. P.O. Box 825
Dayton 1, Ohio

WANTED

50 racks for 18"
plain pallets.

Box 992, Asheville, N. C.

FOR SALE

STEARNS ZIPPER semi-automatic block machine complete to make 8" blocks. Like new condition, $3,000.00. Complete plant to make 2,000 blocks, per day. Will sell part or whole. A bargain, for we must move.

ED. MILLER & SONS
R. D. 4, Box 10-F JOHNSTOWN, PA.
Phone: 34-6411

CEMENT COLORS

Write for free samples and prices of "LANSCO" CEMENT COLORS produced in 50 attractive shades. Packed in bulk and in 1 lb. and 5 lb. packages.

manufactured by

LANDERS-SEGAL COLOR CO.
73 Dolcven St. Brooklyn 31, N. Y.

BUILD GOOD WILL

Advertising necessities for the block industry. Line Pins, Twigs, Modular Coursing Stick. Also the new Block Calculator and Wood Corner Block. All imprinted with your advertising. Complete catalog on request.

GERSON CO.
99 DEERING ROAD, MATTAPAN, MASS.

FOR SALE

Fork and platform power lift trucks, used and guaranteed factory rebuilts.

ERICKSON POWER LIFT TRUCKS, INC.
Saint Anthony Blvd. & University Ave. N.E.
MINNEAPOLIS 18, MINNESOTA
Phone—Sterling 1-9508

CONCRETE BRICK COLORS
CEMENT COLORS
MORTAR COLORS

made by

BLUE RIDGE TALC CO., INC.
Henry, Virginia

WANTED

Spade type off-bearer and boom like used on No. 9 Joltcrete.

BLUE RIDGE FUEL CORP.
1400 Moreland Ave.
Baltimore, Maryland Lo 6-8200

ALSO SEE WHERE TO BUY ADVERTISING ON OTHER EQUIPMENT IN ROCK PRODUCTS' GENERAL SECTION

"READY-MIX TRUCKS FOR SALE"

1—2 yd. Smith Mixer, Waukesha engine power, mounted on a 1948 International Single axle, recently repainted, good condition.
1—2 yd. Rex Mixer, Waukesha engine power, mounted on a 1948 International single axle, good condition, repainted.
1—3 yd. Smith Mixer powered with Continental Engine, mounted on International K-8F, tandem rear axles, repainted.

All priced right, ready to go.

FREDERICK G. SMITH & CO., Freeport, Illinois

GOOD WILL BUILDERS

For the block manufacturer. Help your contractors and bricklayers get quicker, easier and straighter masonry construction with U.B. tools that carry YOUR advertising. U.B. Corner ties Linestretchers, Line Pins and Twigs. We also wholesale a full line of tools for the block layer. Write for catalog and prices.

UNITED BUILDERS
1822 Lindberg Drive
Muskegon, Michigan

SALESMAN WANTED

To sell our famous Formula No. 640 colorless masonry sealer, silicone water repellent, concrete hardener, floor mastic, admix for topping floors always cold and wet, curing compound, rubber enamel, roof coatings, gilsonite paints, floor wax containing duPont's Ludox. Thirty products. Contact building owners and managers, contractors, etc. Commission. Territory. Name this magazine. Write **Haynes Products Co., 4007 Farnam St., Omaha 3, Nebr.**

FOR SALE

1—2 yd. Dumperete on 1951 Chev-18000 actual miles.
1—2½ yd. Dumperete, '51 Chev-21500 actual miles.
1—2 yd. Dumperete, '46 Dia. T-36500 actual miles.
All equipment excellent condition including tires. All trucks with 2 speed. Will sell all three for $2500.00.

Concrete Products Company
Box 7, Winterset, Iowa

FOR SALE

Two 2½ yard Jaeger mixers mounted Ford F-7 single axle trucks. One 3½ yard Smith mixer mounted Ford F-8 single axle truck. Overhauled and painted, good condition. Used approximately 2 years. Priced to sell.

Phone W. R. CARSON 35993 Columbia, S.C. or write P.O. Box 337, Cayce, S.C.

FOR SALE

Complete Block Plant 180 Kirkman Block Machine, One Bag Besser Mixer Steel Racks and Oiled Wood Pallets.

CITIZENS COAL & SUPPLY CO.
P.O. Box 606 Bluefield, W. Va.

MOLDS

Splash Block—Stepping Stone
Lintel Molds

Concrete Mold & Engineering Co.
P.O. Box 183 Battle Creek, Michigan

WANTED

Used Transite Pallets

State what you have, size, condition and price.

JAMES BLOCK CO.
Murfreesboro, Tennessee

FOR SALE

5—3 Cu. Yd. Jaeger and Blaw Knox H. D. Mixers mounted on Autocar and Mack Trucks, 1946 and 1947, all in good working condition. Reasonable.

THE GOFF-KIRBY COMPANY
Cleveland 14, Ohio
Telephone: MAin 1-8600

UNBREAKABLE PALLET RINGS

Write for full information
TEXAS FOUNDRIES
LUFKIN, TEXAS

FOR SALE

#7 Stearns Joltcrete.
4"—6"—8"—12" Mold boxes.
2800 6" Pressed steel pallets.
3600 8" Pressed steel pallets.
1800 12" Pressed steel pallets.
300 8" Header castings.
280 12" Header castings.
Chimney Block machine with 100 pallets.
Schwitzer-Cummins gasoline lift truck.
¼ HP air compressor.
Miscellaneous repair parts, cores, heads, etc.
Machinery may be seen in operation any time next 30 days by appointment. Replacing with new equipment.

CALDWELL CINDER BLOCK CO., INC.
P. O. Box 346—LENOIR, N. C.—Phone 4-6541
Plant: Hudson, N. C.

WANTED

Manager - Superintendent

Western Readimix Company. Must be qualified in all phases of sand and gravel, concrete, and supervision.

BOX M-47, CONCRETE PRODUCTS
309 W. Jackson Blvd., Chicago 6, Ill.

FOR SALE

Nice Concrete Products and Ready-mix business, modern plant nicely arranged, Besser Block machine. Six 3 to 5 yard mixer trucks, all necessary hauling and handling equipment. Plant now averaging $500,000.00 gross sales for year. The plant located Aiken, S.C., one of fast growing industrial areas, fifteen miles from Savannah River Atomic project, nineteen miles from Augusta, Georgia.

Priced to sell. Terms to responsible buyer.

Phone W. R. CARSON 35993 Columbia, S.C. or write P.O. Box 337, Cayce, S.C.

33 years ago they told me:

"YOU HAVE LESS THAN A YEAR TO LIVE!"

"MUST HAVE BEEN back in 1919 or '20. Hopeless case of diabetes. No known cure.

"BUT HERE I AM. They found a treatment —insulin—in time. Today, *nobody* has to die of diabetes.

"CANCER, I know, is a tougher problem. But the laboratories can lick that one, too—with our support. Already, they're curing people who would have been done for a few years ago. Last year—thanks to $5,000,000 allocated by the American Cancer Society from our contributions—they found out a lot more . . . though there's still a long way to go.

"THEY NEED MONEY, though. $5,000,000 is still less than 4 cents per American *per year*. Not enough to find the answer *fast* enough—230,000 Americans are going to die of cancer *this year*, they say.

"I'M NOT RICH, but I gave 'em $50 last year—hope to do better this time. After all, where would *I* be if the laboratories working on diabetes, that time, hadn't been given enough support—?"

Cancer
MAN'S CRUELEST ENEMY
Strike back—Give
AMERICAN CANCER SOCIETY

LOWER COST PACKER-HEAD WINGS

Proved to last as long or longer—yet cost considerably less. Write for prices.

TEXAS FOUNDRIES
LUFKIN, TEXAS

Successful, Operating CONCRETE PRODUCTS PLANT For Sale in VIRGINIA

Five 38' curing tunnels, Lintel building, Besser block machine, all other equipment, land and buildings included. A growth business in a growing community. Average net profit before taxes $38,000. For further details on property RP-60539, consult

PREVIEWS, INC.
The Nationwide Marketing Service
49 E. 53rd St., N. Y. 22, PLaza 8-2630

ASSISTANT SUPERINTENDENT

wanted by large Ohio stone plant. Experience in all phases of operation, maintenance and cost control from stripping to shipping is preferred. Please furnish complete data in first letter and indicate the approximate salary required.

BOX M-49, CONCRETE PRODUCTS, 309 W. Jackson Blvd., Chicago 6, Ill.

KEEP ABREAST
WITH
INDUSTRY TRENDS
THROUGH
ROCK PRODUCTS

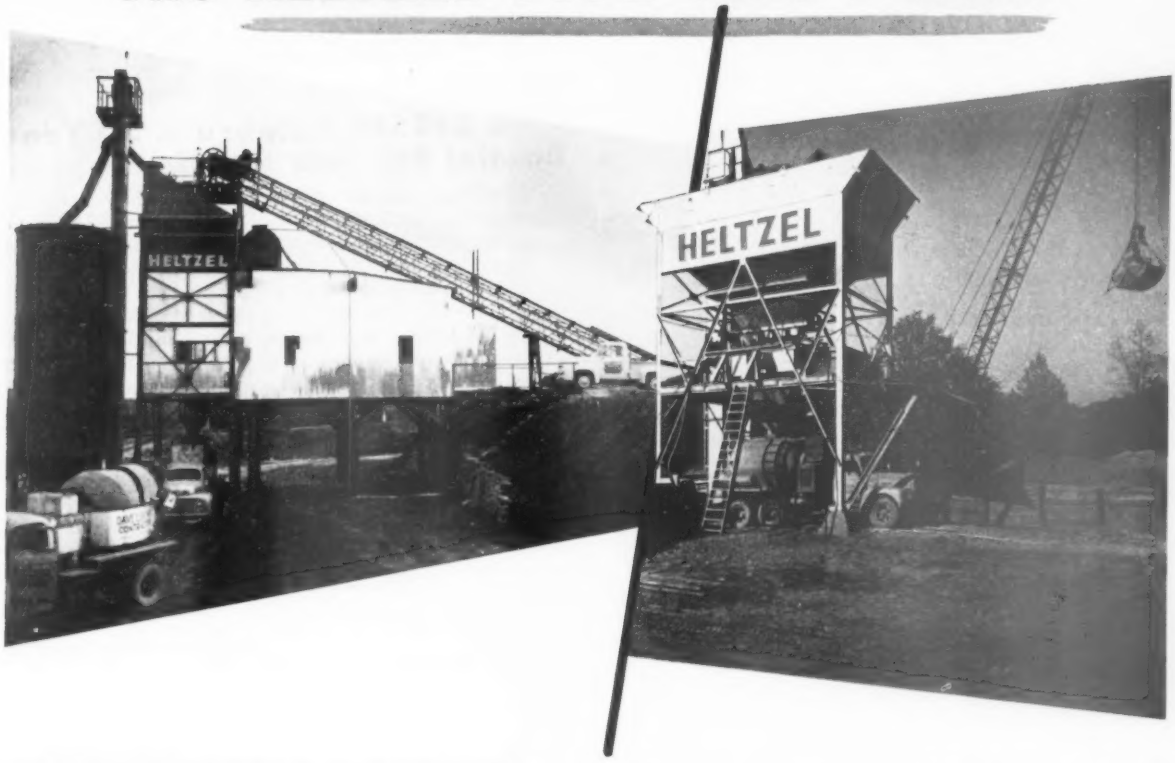
COLOR YOUR CONCRETE! SMITHKO

LIMEPROOF CONCENTRATED DRY COLORS
Write for samples and brochure, "Getting Results With Color in Concrete and Cement Products"
SMITH CHEMICAL & COLOR CO.
52 JOHN ST. BROOKLYN 1, N. Y.

INDEX TO ADVERTISERS IN THE CONCRETE PRODUCTS SECTION OF ROCK PRODUCTS

SEE INDEX OF ROCK PRODUCTS SECTION—ADVERTISERS ON PAGES 159, 160

The HELTZEL TYPE-TWO PLANT



BIG PRODUCTION *Where You Want It!*

This is no "Fancy Dan" piece of equipment. It's a big 200-ton capacity husky that can be quickly erected and dismantled, moved from job to job in large, easy-to-handle sections.

It's fast and accurate . . . no holdups or fouled batches. It's the big, versatile, hard-working plant designed to keep pace with modern concrete construction. It takes any type batcher, including the new Heltzel Automatic Push Button.

If you're in the market for big, high-production, portable equipment, check this **Heltzel Type-Two Plant** before you buy. It's available in the cement-aggregate design, or for aggregates alone. There are batchers, cement plants, elevators, conveyers—everything you'll need, designed to work with it.

THE HELTZEL STEEL FORM and IRON CO.
6700 THOMAS ROAD
WARREN
OHIO

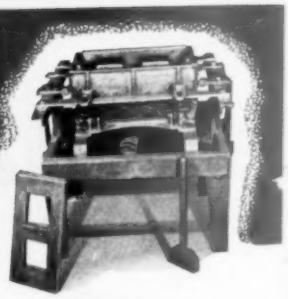
Please send latest Batching Plant literature to:

Name_____

Company_____

City_____ State_____

Another BESSER Booster ★



★ This is the 109th of a series of ads featuring leaders in the Concrete Products Industry who are stepping up block production with Besser Vibrapac machines.

John Nagy, a "Daddy" of the Concrete Block Industry and founder of Columbia Concrete Products, Inc.

NAGY and BESSER Celebrate 50 Years of Cordial Business Relationship!

Back in 1904, John Nagy, founder of Columbia Concrete Products Inc., Toledo, Ohio, bought the very first block machine manufactured by Besser. This early hand-operated model used cored pallets. Production totalled 300 units per day, using 2 men on the machine and 1 mixer man.

Now, 50 years have gone by and during this time both Columbia Concrete Products and Besser have made tremendous progress. Whenever Nagy required more block machines, he installed Besser equipment . . . first a tamper with 1500 per day production . . . then an automatic stripper producing 3000 units per day. This was followed by several three-at-a-time Vibrapacs and more recently a six-at-a-time Vibrapac with its 10,000 per day production record.

Joe Nagy, President and General Manager, states **"We relied on Besser equipment and found it to be the best. It always produced up to expectations".** Frankly, isn't it significant that the Nagys always came back to Besser when the ever-increasing demand for concrete block necessitated the installation of additional block machines?

BESSER MANUFACTURING COMPANY

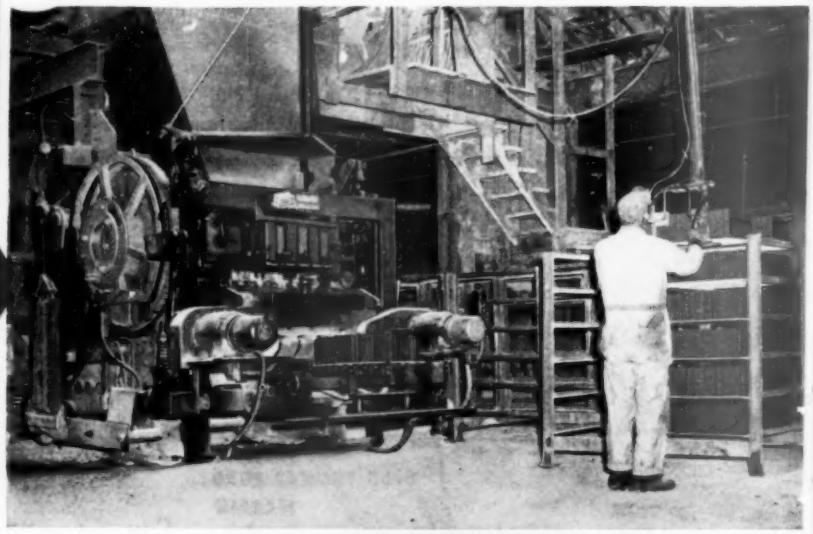
BOX 135 • ALPENA, MICHIGAN, U.S.A.

Complete Equipment for Concrete Products Plants

Two sons of John Nagy inspecting Vibrapac Block. Joe (at right) is President and General Manager.

Storage yard at one of the plants. Note Vibrapac Block piled three cubes high. Columbia is one of the largest block producers in the Middle West.

St. Charles Hospital, Toledo, Ohio, recently completed. Columbia Concrete Products furnished 3", 4" and 6" hollow cinder units as well as cinder and cement solid brick.

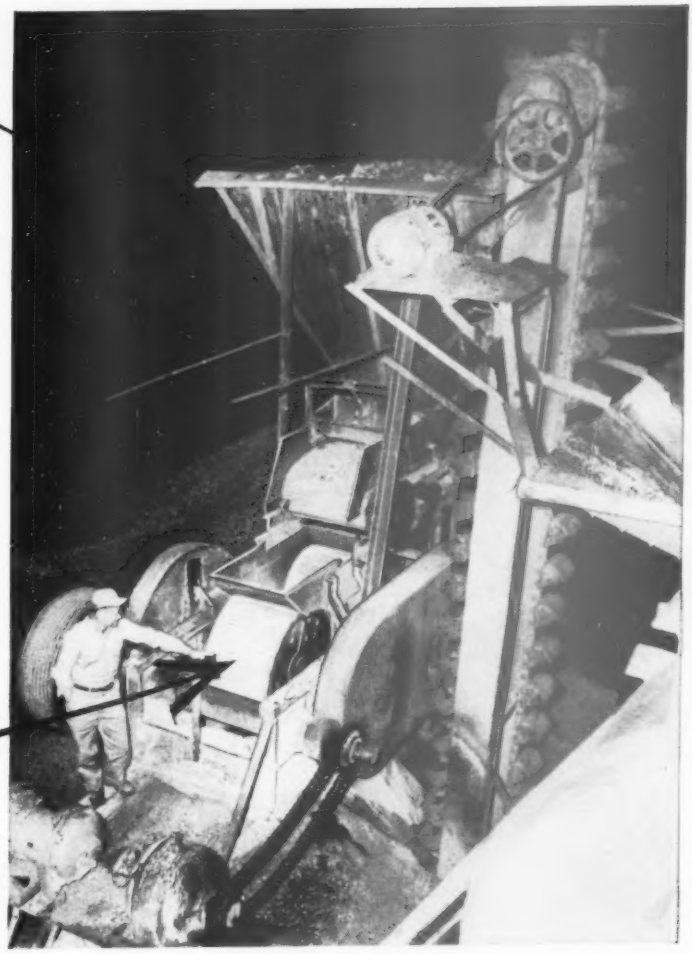


Interior view of one of the Columbia plants showing a Besser Vibrapac in operation. Three 8 x 8 x 16 modular block produced at a time on one Plain Pallet. Smaller sizes, in equivalent multiples, on the same Plain Pallet.

BESSER 50th Anniversary 1904-1954

A Half Century of Concrete Masonry Progress!

Crushing Life Increased 500% by Hard-Facing with HAYNES 90 rod



Hard-facing the rolls in this crusher rig with HAYNES 90 Rod makes them more than 5 times more durable. Two sets of rolls are used to crush rock from 3-in. down to ½-in. screen size. They handle up to 26 thousand tons of rock with a minimum of repairs—despite severe wear from abrasion and impact. Other hard-facing materials wore out before 5,000 tons of rock were crushed.

Since HAYNES 90 Rod was adopted as the standard material on this job, production increased, down-time was reduced, labor and maintenance costs were cut, and less hard-facing material was needed per ton of rock crushed. This is typical of the kind of savings that can be realized by hard-facing with HAYNES alloys.

HAYNES hard-facing alloys give outstanding service when used to protect parts in crushers, shovels, tractors, trucks, conveyors, and other metal parts exposed to wear from abrasion, impact, corrosion, or heat.

Your local dealer carries a complete line of HAYNES hard-facing alloys, including: HAYNES iron and nickel-base rods, HAYNES STELLITE cobalt-base rods, and HAYSTELLITE tungsten carbide tube rods. Ask him for descriptive literature. If you don't know the location of your local dealer, write to Haynes Stellite Company, a Division of Union Carbide and Carbon Corporation, Kokomo, Indiana.

See... | Your local Haynes Stellite Dealer

or

Write... | to Haynes Stellite Company

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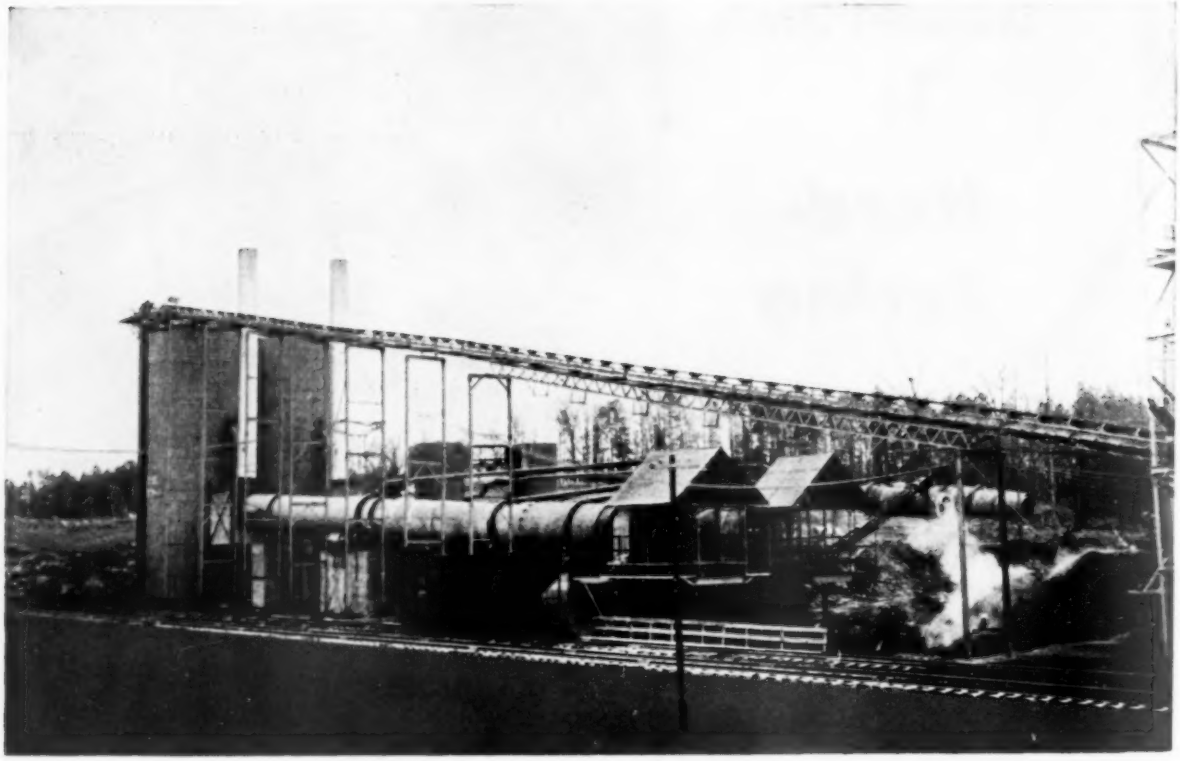
YOU GET MORE VALUE

...more years of productive life

with VULCAN ROTARY KILNS



Here is one of the newest lightweight aggregate plants in the Southeastern section of the United States. It is the Carolina Solite Corporation, near Aquadale, North Carolina, a subsidiary of the Southern Lightweight Aggregate Corp.

The above illustration shows two rebuilt VULCAN rotary kilns, 7x8x135′, fired with powdered coal, and producing "Solite" controlled lightweight aggregate. The finished "Solite" is a tough, hard manufactured lightweight aggregate identical in characteristics to that produced by the parent companies' Bremo Bluff operation.

The Aquadale operation is another instance of the successful re-use of VULCAN rotary kilns, in the lightweight aggregate field, where the Vulcan Iron Works had no record of Carolina Solite Corporation owning Vulcan kilns. It is a good example of the ruggedness of VULCAN equipment, since these kilns had already served a very useful and normal length of life in another industry before going into lightweight aggregate.

If you and your Company have any questions regarding Rotary Kilns for any application, The Vulcan Iron Works, with their 105 years of experience, will be there on short notice to assist you in every way possible. Why not write today for their 28-page Rotary Kiln Bulletin A-442.

Any information on items listed below will be sent to you immediately:

- Rotary Kilns, Coolers and Dryers
- Rotary Retorts, Calciners, Etc.
- Improved Vertical Lime Kilns
- Automatic Quick-Lime Hydrators
- Briquetting Equipment
- Open-Hearth Steel Castings
- Heavy Duty Electric Hoists
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- Low traveling height
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- Oversize vibrating screen
- Sand rejector (optional)
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3 MODELS... capacities from 30 to 70 tons/hr.

Designed for frequent moving, quick set-up and knock-down to give you more efficient crushing *where* you want it—*when* you want it. Ideal for counties and townships, secondary and access road construction, and areas where a high degree of mobility is needed. Low hopper height (10′ 4½″) gives ease of loading with ½ or ⅜ cu. yd. shovel. Heavy Duty Grizzly openings give higher crusher production with minimum of scalping. Location of wheel bar tongue and short wheel base provides needed maneuverability on road or in pit. Hinged delivery conveyor eliminates dismantling for towing. Mechanical or air brakes and fully guarded drives mean added safety. Adjustable single eccentric plate feeder provides a constant, even flow of pit run material.

Completely modern in every way, the Diamond Portable Crushing Plant is your answer to more efficient crushing.

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Here's a prescription that can provide an effective solution for you... the specialized service offered by your Chain Belt Field Sales Engineer and the outstanding performance of Chain Belt Equipment:

for example: If bucket elevator chain breakage is your "headache," Rex® S-858 and S-856 chains will provide relief. These precision-made steel chains will not break... properly applied, they may *wear* out after the longest possible service life. They will outlast... outwear any other chains built for bucket elevator service.

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CHAIN BELT COMPANY

District Sales Offices and Distributors in all Principal Cities

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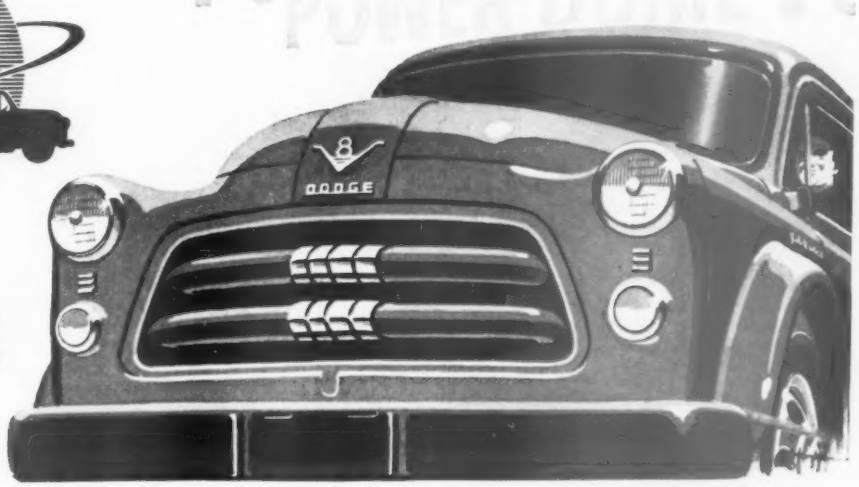

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9th LORAIN
digs limestone to feed 350 t.p.h. operation at Mitchell Quarry

Lorain-820 features Hydraulic Coupling for steady output

The Mitchell Crushed Stone Co., Inc. at Mitchell, Indiana, an affiliate of Ralph Rogers & Co., Bloomington, Indiana, is one of the largest modern crushed stone operations to be developed in Indiana. The quarry turns out a wide range of specification aggregates and agstone at the rate of 350 t.p.h. Modern methods and equipment are the key to a highly mechanized and efficient operation.

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One of the keys to such profitable shovel performance is the Hydraulic Coupling power take-off on the Lorain 820-K. This fluid drive coupling prevents the engine from stalling even under the most severe digging conditions. The power won't fail. The 820 "hangs-on" until the toughest rock is in the dipper. Shocks, stresses and strains are "cushioned" too—just can't reach turntable mechanism or cables. Maintenance is minimized, work schedules are uninterrupted. In addition, air controls ease the operator's work in the tough digging. Again, production gets a boost.

The Lorain-820 story is worth looking into —completely. It's a story about many features, a wide selection of mountings, on crawlers or rubber tires and easily convertible front ends for a wide variety of material handling. Your nearby Thew-Lorain Distributor can tell you the "820" story in detail.

CHECK THESE LORAIN-820 FEATURES FOR YOUR JOB!

- *Equipped with smooth-acting, shock-absorbing Hydraulic (fluid drive) Coupling. Keeps full power digging—saves wear and tear.*
- *Air controls for crawler steering, tread locking pawls, travel jaw clutch, crowd jaw clutch.*
- *Air-assist on crowd and retract clutches for crowd, retract, crawler travel, boom derricking and lowering. Lessens operator's effort, retains sensitive clutch "feel".*
- *Center Drive distribution of engine power—puts it where you need it!*
- *Independent crawler travel—2 speeds.*
- *Self-equalizing turntable rollers, mounted on roller bearings —hoist and swing drums on anti-friction bearings.*

SEND FOR "820" CATALOG

See what makes the "820" tick . . . see every detail of each major component and the Lorain design features and quality that make it a leader in the 2-yard class. A book you'll want for your files. Write to . .

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We take our loss on our stock of short length belting and previous model idlers. You save as much as 50% by buying the BONDED CONVEYOR SPECIALS listed with conveyor belting in two pieces. **Belting** is 4 ply, 28 oz. duck, ⅛" top rubber cover and 1/32" bottom cover.

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18"	45'	1839	960
18"	50'	2054	1043
18"	85'	3209	1581
18"	100'	3704	1814
18"	130'	4694	2173
24"	25'	1322	739
24"	45'	2062	1085
24"	60'	2617	1355
24"	100'	4097	2037
24"	130'	5207	2606
30"	25'	1421	806
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30"	80'	3731	2295

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Width	Ply	Top Cover	Bottom Cover	Duck Carcass	Price
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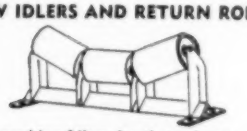
18"	4	1/8"	1/32"	28 oz.	2.50/ft.
24"	4	1/8"	1/32"	28 oz.	3.23/ft.
30"	4	1/8"	1/32"	28 oz.	3.97/ft.

Additional widths and plies available at low prices. Write for free sample.

NEW IDLERS AND RETURN ROLLS



3-roll Troughing Idlers for these sizes:

16" belt.....$17.25 30" belt.....$19.50
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24" belt..... 18.75 48" belt..... 21.75

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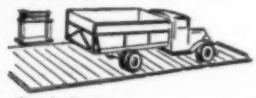

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15 cu. yd. Cedarapids sand drag. New.
60-ton, 2-comp., 8'x18' storage bin w/clam gates.
Special bins to your specifications.
Conveyors—18"—24"—30"—36". Also belt.
24" dia. x 30" face magnetic pulley.

SHOVELS AND CRANES

Lorain L-820 diesel drag, clam, crane.
Lorain 75B, 1¼ yd. diesel.
Lorain 57, 1¼ yd. diesel.
Lorain 40A on Autocar 10-Wheeler.
Link Belt LS85 Diesel Combination. Rebuilt.
Unit 514, ½-yd. gasoline crawler shovel, rebuilt.
Lorain 30A, ½-yd. gas combination.

TRACTORS, GRADERS & EUCLIDS

Caterpillar 12 diesel power, scarifier, cab, 1952.
TD9 International with 1-yard Loadover.
TD24 International with Bucyrus-Erie bull-grader.
Model CR Tournapull s/16-yd. Model E16 Tournarocker, rebuilt.
2—27FD Euclid rear dumps.
6—43FDT Euclid bottom dumps.
4—25FDT Euclid bottom dumps.

AIR COMPRESSORS

600 cu. ft. Gardner-Denver. Rebuilt.
500 cu. ft. Gardner-Denver diesel. Rebuilt.
500 cu. ft. Ingersoll-Rand.
365 cu. ft. Gardner-Denver. New condition.
105 cu. ft. Gardner-Denver. New condition.

L. B. SMITH, INC.
Dept. A
CAMP HILL, PA.
Phone Harrisburg 7-3431

CRUSHER FOR SALE

Traylor Jaw Crusher, 18" x 36", Type H, Serial No. 49363, complete with 60 H.P., A.C., slip ring motor, starter, V-belt drive and $1000.00 worth spare parts. Perfect condition, manufactured 1948 — put into service 1951 — replaced by larger unit 1953.

Original cost $21,000.00
Priced complete..$10,000.00

Location: Kings Mountain, N. C.

RISH EQUIPMENT COMPANY
P. O. Box 1369
Roanoke 7, Virginia Phone: Roanoke 8141

FOR SALE or RENT

1¼ yd. Manitowoc 3000A diesel crane.
½ yd. Link Belt LS50 Backhoe-Crane.
30 ton Ind. Brownhoist Gas Loco. Crane.
25 ton Orton diesel Loco. Crane.
65 ton Porter Diesel-Elec. Locomotives.
44 ton GE Diesel-Elec. Loco., new 1942.
25 ton GE Diesel-Elec. Loco., new 1950.
30 yd. Western & Koppel Air Dump Cars.
25 ton Wiley Steel Stiffleg Derrick.
1200 CFM Ing. Rand XRE, 200 HP Compr.
130 HP Christian 2D Diesel Hoist.

Mississippi Valley Equipment Co.
513 Locust St. St. Louis 1, Mo.

OVERHEAD ELECTRIC CRANE: One 8 ton, 54' span, 4 motor, clam shell bucket operating.

TRANSITE PIPE: 7000 ft. 14", class 100, NEW condition.

COMPRESSOR: Ingersoll Rand XRE, 225 H.P., 115 lbs., new 1950.

LOCOMOTIVES: 2—65 ton diesel electric, standard gauge, thoroughly modern, excellent condition. For sale or rent.

LOCOMOTIVE CRANE: Link Belt 25 ton capacity, standard gauge, gasoline powered, cast steel trucks, air brakes, with or without 1¼ yd. Williams clam shell bucket, thoroughly modern, excellent condition. Located Minnesota. For sale or rent.

MINE HOISTS: Single and double drum 100 to 1500 H.P., with all electrical equipment. Complete specifications, drawings and photos available.

MINE HOIST SPECIAL: Nordberg 1200 H. P., 1400 FPM, one drum clutched, wraps 1100 ft. 1¾" rope, complete with motor and all auxiliary equipment, with or without 95 ft. head frame.

MINE HOIST MOTOR: 400 H.P., 3 phase, 60 cycle, 2200 volt, 588 RPM, complete with control equipment.

AIR SEPARATOR: One Sturtevant 16 ft.

DRYER or KILN: One 11' x 75', single shell.

CLASSIFIERS: 4—Akins 54" x 34 ft. with lifting device, 220/440 volt motors. 2—Wemco 78" Simplex, single screw, double pitch, 28½ ft. tank, 220/440 volt motors. All in condition like NEW. 1—Wemco Duplex size 72" x 32 ft., type SH, pitch double and variable, with lifting device, 220/440 volt motor. NEW and UNUSED. Three located Wisconsin.

PULVERIZER: Hardinge 5 ft. x 22" Ball Mill complete with motor driven disc feeder. 30 H.P. motor and control.

JAW CRUSHERS: Sizes 10" x 20" to 48" x 60".

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Used H.D. Pan Feeder, Minimum size 8' centers x 48" width. Good used Hammermill complete with motor, starter, etc. Feed opening large enough to accommodate stone from ¾ yd. shovel bucket.

PAUL LIME PLANT
PAUL SPUR, ARIZONA

Bird Solid Bowl Cont. CENTRIFUGE 54" x 70". PLANT for producing & packing Dry Mix Matl.
CRUSHERS: 1016 CR, 1218 Acme, 1524, 1536 Diamond, 1836 & 2036 CR, 2436 Lippman, 2540 CR, 3042 Telsmith, 4836 & 4248 Traylor JAW. #19 Kennedy, 322R Allis, 7' Newhouse, 12K Gates, 10, 14, 16, & 36" McCully. 16B Telsmith GYR. 2, 3, & 4' Symons 36" Penna. Gyracone, 18x42 Traylor dbl. roll.
MILLS: Williams "Comet" 4-roll. Jeffrey 2436 & 3636, Grundier 2XB, 3XB, #4 Univ. Hammer.
10' Gayco & Sturtevant Air SEPARATORS.
4x24, 5x40, 6x30 & 6x36 Rotary DRYERS.
700 HP 2300V West. splash proof MOTOR.
Two 40 ton, 50 ton, one 105 ton Steel BINS.
36" x 25' Eagle screw, 24" x 18' Log WASHERS.
40 ton OET Trolley Crane.
SHOVELS: Lorain 40, NW 25, Marion 7, 37 & 93M, Lorain 77, P&H 655B, Bucyrus GA2, 37B, 44B, 54B, 70B & 80B, Lima 802 & 1201, Lorain L820.

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8321 Gannon—Wydown 1-2826—St. Louis 24, Mo.

Used Model E Quick Way trench hoe B 24" & 4/10 yd. Dragline Bucket 30 ft. boom on Coleman 4 wheel drive truck with winch in perfect running order $5000.00 to $7000.00.

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12—304 HP Kewanee Firebox Boilers, Model 590, 125 PSI, with oil burners & soot blowers, ASME.
4—150 HP HRT Boilers, 150 PSI, gas fired, ASME.

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18"x36" Jaw, Traylor, Bulldog.
14"x16", Bartlett & Snow, 2 roll.
48" Symons, vert. disc.
42"x14" Traylor, 2 roll.
28"x24" Williams Impact Crusher.
18"x18" Jeffrey, single roll.
30" Stedman, 4 cage Mill.
42" Raymond, 3 roll, high side.
50" Raymond, 5 roll, high side.
Raymond No. 1, double whizzer complete.

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3—35'-65' ec., 12"x6" buckets, Cent.
2—40' ec., 6"x6" buckets, Centrifugal.
4—20'—31' ec., 6"x4" to 8"x6" buckets.
1—50' ec., 8"x5" buckets.
1—44' ec., 15"x12" buckets.

KILNS—COOLERS—DRYERS
9' x 80' x ⅝" Allis Chalmers.
8' x 125' x ¾".
7' x 160' x ⅝" (2).
7' x 120' x ⅝" (2).
7' x 45' x ½" Link-Belt.
5' x 67' x 5/16".
5' x 30' x ⅜" Ruggles-Cole.
4'6" x 50' x ¾" with lifters.
4' x 30' x ⅜".
310-16 Roto-Louvre.

SCREENS
4' x 10' Seco, double deck.
4' x 7' Tyler-Hummer, single deck.
3' x 8' Link-Belt, double deck.
2' x 4' Aero-Vibe with motor.

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14"x13" Worth. Compr. 628 cfm, 100 psi.
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BUCYRUS-ERIE Model 43B—1¾ yd. Shovel with 50' Crane Boom, Buda Diesel Engine.

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LORAIN Model 820—2 cu. yd. Shovel, Waukasha Diesel Engine. 1948 machine.

LORAIN Model 414 Truck Crane. Recently rebuilt.

These machines have been put in first class operating condition and are priced right.

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1—4x20, 1—6x60, 1—8x45, 1—8x60.

60 FT. CRANE BOOM
1 Latticed steel crane boom 60 ft.

JEFFREY HAMMER MILL
36x24 Jeffrey type B2 & 75 H.P. Motor.

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10 ton Davenport Std. Ga. Gasoline.
25 ton Plymouth Std. Ga. Gasoline.
70 ton G. E. Std. Ga. Diesel Elec.

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3864 CFM Ing. Rand Pre-2, 2200 V.
3074 CFM Chgo. Pneu. OCE, 2300 V.
676 CFM Ing. Rand XCB—Belted.

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From Birmingham Stock

Rear Dump, 22 ton capacity.

Several to pick from.

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THESE ARE GOOD BUYS

Manitowoc Used Shovel Attachment, complete, for Model 1600 or Model 2000.
Insley "K-12" Used ½ yd. Dragline.
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Haiss "75C" Used Bucket Loader, Crawler-Mounted.
Haiss "75W" R.T. Wheel-mounted Bucket Loader, 1950 model.

EIGHMY EQUIPMENT COMPANY
120 S. Pierpont Rockford, Illinois

FOR SALE BY OWNER
2—Trucks, Autocar Model 2006485N 17 Yd. Rock Bed, 200 H.P. Diesel Tandem drive, net weight 26 tons, new 1951, excellent condition.
1—Bucket elevator 24"x36" Buckets, mounted on steel chain 122' centers with drive.
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1—2" Moyno Pump, 3" & 4" Bingham rubber lined Slurry Pumps, 2", 3" & 5" Model "C" & "K" Wilfley Pumps.
1—54"x34' Aikens Classifier.
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2—4'x6' S.D. Allis-Chalmers Screens, Utah Type.
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For further information contact J. H. CLEMENTS in care of BASIC REFRACTORIES, INC., Maple Grove, Ohio

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1—10'6" D x 112' L Rotary Kiln.
1—6' D x 16' L Steel Ball Mill.
3—4'6" D x 12' L Pebble Mill.
10—Muffle Furnaces 18" D x 8'6" tubes.
Crushers — Colloid Mills — Filters — Wood Tanks — Steel Tanks — Thickeners — Trough Conveyors — Pan Conveyors — Elevators — Blowers — etc.

LIQUIDATING & DISMANTLING COMPLETE LITHOPONE MFG. PLANT

PERRY EQUIPMENT CORP.
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FMC 180—Good condition with Standard 4", 6", 8" and Brick Molds **$1,000.00**

25 cubic foot Multiplex mixer with starter **$1,000.00**

Practically new — will sell separately 12" mold box, vibrator and feed drawer ..... **Half Price**

Pressure Head with 4", 8", and 12" plates ..... **Half Price**

Barrett-Craven Lift Truck **$100.00**

Available immediately — replaced by larger equipment.

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Wanted by an engineering graduate position as superintendent or manager or similar category leading to management in the Rock Products industry. 16 years experience in the Portland Cement and non-metallic mineral processing industries, which included operation research, plant engineering and construction, supervising plant operation and maintenance, cost control, and labor relations. 38 years, Married, Children, Excellent health, and location immaterial. Box M-45, ROCK PRODUCTS, 309 W. Jackson Blvd., Chicago 6, Illinois.

FOR SALE

Used Sand Washer, Drag-type, complete with new belt, original 10 H.P. motor, drive, etc. Excellent operating condition, and priced to sell.

SANTA ANNA SILICA SAND CO., INC.
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FOR SALE

Plymouth 35-ton gas locomotive, std. gauge.
Whitcomb 7-ton gas locomotive, 36" gauge.
Walking draglines, 3 to 12 yds., diesel elec.
Telsmith 26" gyratory primary crusher.
Cat DW10 wagons; Euclid end & bottom dumps.
Shovels, draglines, cranes, 1⅛ to 6 yds. (10).
Rotary dryers, kilns: 54"x40', 8'x125'.
Bucyrus 42-T Blast hole drills, 9", elec. (2).
Colby 14-ton hammerhead crane, 145' reach.
Bucyrus 2½ yd. shovel att. only, 55B-52B.
H. Y. SMITH CO., 828 N. Bway, Milwaukee 2, Wis.

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1—1953 T.D. 18 A. I. H. C. Track tractor with 12 ft. angle Bullgrader Serial No. 26089 with D. D. P. C. U.
1—1948 T.D. 18 I.H.C. track tractor with hydraulic 10 ft. Bulldozer.
1—1954 ¾ ton G.M.C. pickup truck (new).
1—1946 3½ to 4 ton Reo truck with 6 yd. dump body. Plus maintenance tools.

T. L. THOMPSON
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LOCOMOTIVE CRANES
For Sale or Rent

1—30 Ton Orton Diesel, 1943

2—30 Ton Browning Diesel, 1943

B. M. WEISS COMPANY
Girard Trust Company Bldg.
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FOR SALE

1—Worthington #315 portable air compressor; rubber tires, International Diesel.
1—Worthington Wagon Drill, 6 feet drill changes, 4" drifter.
1—5' x 10' Telsmith Triple deck Vibrating screen.
2—Atlas Belt Conveyors:
1—14"—40 ft. long; 1—16"—60 ft. long.

QUALITY LIMESTONE PRODUCTS, INC.
Sussex, Wisconsin

WANTED

Supervisors with gypsum plant experience for location in western United States. Submit full details of education, experience, references, and salary required.

BOX M-38, ROCK PRODUCTS
309 W. Jackson Blvd., Chicago 6, Ill.

FOR SALE

Bucyrus-Erie 120-B electric dragline, mounted on caterpillars; 100 foot boom; 4⅝ cubic yard bucket. Has recently been reconditioned and in excellent condition, has been used mostly for rehandle. Reason for sale: Less rehandle in new coal pits and have two other machines. Specifications and photographs sent on request.

NORTHWESTERN IMPROVEMENT COMPANY
Colstrip, Montana

1600 hp Fairbanks-Morse diesel 38-D-8-⅛. Complete dredge pump 20" suction, 18" discharge.
20", 2', 3', 4', Symons—36" Telsmith—16" Superior McCully—#54 Marcy ball mill—5x14 Marcy rod mill—18x36 Farrel Bacon 13B Telsmith—10B Telsmith—15 ton end dump Euclids.
Jaw crushers to 48x60—cones & gyratories—roll crushers—rod & ball mills—hammer mills — screen, crush & washing plants.
Classifiers—compressors—converters—conveyors—blast hole drills—dump cars—engines—feeders—generators—hoists—kilns & dryers—locomotives—motors—pumps—shovels & draglines—screens—transformers—Euclids.

List your used equipment with us, we can sell it for you.

STANLEY B. TROYER
Theatre Bldg. — Tel. 500 — Crosby, Minnesota

1—9" x 15" Champion Jaw Crusher.
2—10" x 20" Champion Jaw Crusher.
1—Type 30 New Holland Impact Crusher.
1—Pair New Holland 16" x 16" Rolls (Lot spare shells & parts.)
2—New small Swing Hammer Mills, 5½" x 8" feed.
1—12" Enclosed Cent. Disc. Elevator, 78' centers with Motor. Heavy case.
1—Magnetic Separator, Dings - Rowand - Wetherill. 100,000 Ampere Turn. 18" Endless Belt, 3 Cross Belts, Gear Head Motor Drive with Motor Generator. Unit complete. Can be seen operating.

JOHNSON & HOEHLER, INC.
P. O. BOX 102 LANSDOWNE, PA.

FOR SALE

One late model Gene Olson Corporation senior block machine plain pallet two years, four months old, in excellent condition. Included with this machine are the following mold boxes: 4", 6", 2-8", 10", 12" chimney block all the accessories to make halves, sash, bull nose, double corners, etc.

ERIE BUILDERS' BLOCK COMPANY
13th and Myrtle Streets, Erie, Pa.
Phone 4-1531

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Get information and prices quickly on machinery, equipment. Check item (or items) about which you desire information. Send to us.

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___Admixtures, Aggregate
___Aftercoolers, Air
___Agitators*
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___Air Separators
___Asphalt Mixing Plants
___Bagging Machines
___Bags*
___Barges
___Batchers
___Belting, Conveyor, Elevator, Power Transmission*
___Belt Repair Equipment
___Bin Level Indicators
___Bins and Batching Equipment
___Bits*
___Blasting Supplies
___Block Machines,* Concrete Building
___Bodies, Trailer*
___Brick Machines and Molds
___Buckets*
___Bulk Cement Handling Equipment
___Bulldozers
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___Central Mixing Plants
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___Conveyors*
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___Coolers
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___Draglines
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___Explosives & Dynamite
___Fans and Blowers
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___Front End Loaders*
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___Gypsum Plant Machinery
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___Locomotives*
___Lubricants*
___Magnetic Separators
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___Speed Reducers
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___Trucks, Bulk Cement
___Trucks, Industrial
___Trucks, Mixer Body
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___Welding and Cutting Equipment
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___Wire Rope

If equipment you are in market for is not listed above, write it in the space below.

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Your Name_____ Title_____

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Street_____

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RP-7

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Crushing and Screening Plant

Complete Crushing and Screening Plant, Mobile Tandem 2-Unit type, each triple-axle rubber tire mounted, Cedar Rapids, Iowa model 2-A, rated capacity 25 cu. yd. per hr. actual 45 cu. yd. with Case Engines Model L.A.E. Included is large assortment of new spare parts, jaw liners, roll crushers, sprockets, clutches, etc. and operating and parts manual. Plant has had little use and good care and is in excellent operating condition. Detailed spec. and photos on request.
Price $10,000.00

Dragline Hoists

Northwest ¾ yd. Hoist, '40 model, with right-hand 6 cyl. Wisconsin gasoline engine and starter, 36' boom, 24" wide by 11'0" tracks on 80" centers. In excellent operating condition. Also Ensley ½ yd. Hoist with 6 cyl. Waukesha 3⅝" x 4¼" gasoline engine, 36' boom, 15" x 11'0" tracks on 88" centers. This unit is operable but needs adjustment and tune-up. Included with these hoists are Owen ⅜ yd. Clamshell 2-3 sheave, and Page 3 tooth dragline bucket 36" x 24" x 42".
Price for lot $3,750.00

C-P Compressor

Chicago Pneumatic Compressor, Mo. No. PG-40, 8⅝" x 4¾" x 5", with 6 cyl. Hercules engine, steel tire mounted. In excellent working condition. Price $1,500.00
Above prices are for cash at site, and sale will be made to first bonafide purchaser meeting those prices. Equipment available immediately; buyer responsible for loading and delivery. Location 3½ miles from Seaboard R.R. Station at Ohatchee, Alabama, near Anniston.

For additional information phone, wire or write

MOHAWK SILICA CO.
Ohatchee, Ala.
Phone Anniston Ad6-8451

or

V. E. TOBIN
2992 Linwood Rd., Cincinnati 8, Ohio
Phone East 5821

PRODUCTION EXECUTIVE

Nationally-known building materials manufacturer has unusual opportunity for man thirty-five to forty-five years of age. Must have proven record and experience in plant management including the supervision of engineering and maintenance of heavy duty rock crushers, screens, elevators, raymond mills, calciners, and quarry equipment. Engineering graduate preferred. Employee stock purchase, retirement, and group insurance programs provided with Company and employee sharing cost. Salary open. Our employees know of this ad. All replies will be handled on a confidential basis. Reply, giving complete details of education, experience, and present earnings to BOX M-48, ROCK PRODUCTS, 309 W. Jackson Blvd., Chicago 6, Ill.

WANTED TO BUY

1—24' x 9' x 30 Ton Cap. Steel Beam Truck Scales.
1—16" Face x 24" Diameter Corrugated Double Roll Crusher.
1—4' Diameter x 8' Long Trommel Screen—4" Openings. Conical Screen of Comparable Size will be considered.
1—6" inlet 1" discharge Hydraulic Universal Joint Gun for operating 150 P.S.I.
1—20' or 24' Paddle Type Double Log Washer. Steel Box-enclosed Gears.
2—5' x 12' or 6' x 15' Revolving Cylindrical Scrubbers.
3—48 to 60" Flight—width center distance 20 to 30' Sand Settling Tank Drags—Steel Tanks.
2—24" x 20° Dorr Cones or Whirlclones.
2200' of 12 or 14" Steel Pipe 40' lgths—either for welded or quick coupled joints.
1—2000 G.P.M. 150' Head Centrifugal Water Pump.
1—2000 G.P.M. 50' Head Centrifugal Sand Pump.
1—700 G.P.M. 250' Head Centrifugal water pump.
Drives and motors for above. Give age—price—specifications and inspection location.

M. C. BOYLE PHOSPHATE COMPANY, Centerville, Tennessee
Send copy to same, 407 S. Dearborn Street, Chicago 5, Illinois

DEPENDABLE USED MACHINES

Special, -½ yd. Byers Model 62 comb. shovel and dragline; reconditioned and priced low.

Bay City 1¼ yd. shovel.	Cedar Rapids 40x20 roll crusher.	3 yd. Dumpcrete.
Link Belt ⅜ yd. crane.	Cedar Rapids 16x16 roll crusher.	Butler fork truck.
Bucyrus 22B backhoe.	Simplicity 2x6 single deck screen.	4x10 screen.
Lorain ½ yd. dragline.	45 ton, 3-comp. Port. steel bin.	Eagle cinder crusher.
Butler Carscoop.	40' bucket elevator.	Int. U-21 engine.

These machines reconditioned in our newly-built daylight plant. Come see them.

10030 Southwest Highway — TRACTOR & EQUIPMENT CO. — Oak Lawn, Illinois

Markets are not merely people, but people who *buy*.
Advertise your used equipment in ROCK PRODUCTS

FOR VALUES — BUY BRILL

KILNS—DRYERS

2—9'x80' Allis Chalmers, ⅝" shell.
2—8'x125' Vulcan, ⅝" shell.
2—7'x160' Vulcan, ⅝" shell.
2—7'x120' Vulcan, ⅝" shell.
1—7'x45' Link Belt, ½" shell.
1—4'x30' F. L. Smidth, ⅜" shell.
6—6'x25', 6'x30', 6'x40' steam tube.
1—5'x67' Reeves, 5/16" shell.
1—6'x35' Allis Chalmers, ½" shell.
1—5'x40' Cummer, ⅜" shell.
1—4'6" x 50' Vulcan, ⅜" shell.
1—4'6"x30' Louisville, ½" shell.
2—4'x20' Cummer, 5/16" shell.
1—3'x25' Louisville, ⅜" shell.
2—3'10"x16' Link Belt Roto-Louvre.
1—2'7"x8' Link Belt, Roto-Louvre.

PULVERIZERS—MILLS

2—Raymond High Side Mills 3 and 5 roll.
2—#40, #10 Raymond IMP Mills.
2—Raymond #1 Pulverizers with 6' double whizzer separators.
5—Hardinge 4½'x16", 5'x22", 6'x22", 6'x48", 10'x48".
3—Patterson 6'x8' Ball Mills.
2—Abbe 5'x8'6", 5'x22', Silex-Lined Tube Mills.

CRUSHERS

1—Symons 4' Cone Crusher.
1—Traylor 56"x24" Crushing Rolls.
1—Allis Chalmers 36"x48" Jaw Crusher.
10—Jaw Crushers 5"x6" to 24"x36".

SCREEN SEPARATORS

6—Tyler Hummer Screens 3'x5', 4'x5', 4'x7', 4'x10', 5'x10', 4'x15'.
1—Seco 4'x10' double deck Screen.
1—Link Belt 3'x8' double deck Screen.
5—Rotex 40"x84", 40"x120".
3—Air Separators 6', 8', 10', 14'.

MISCELLANEOUS

2—Chicago 14"x7" Air Compressors 434 CFM.
2—Oliver Rotary Dewaterers 8'x4'.
1—Complete Lime Hydrating Plant.
12—Bucket Elevators 20' to 90' centers.
5—Belt Conveyors 24" to 36".
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